The Library of Congress'

EARLY STATE RECORDS PROJECT

converted from the original microfilm held by the
Vincent C. Immel Law Library, Saint Louis University

through the generous support of a grant from the

Council on Library and Information Resources

THE BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH,

OF THE

STATE OF WEST VIRGINIA,

FOR THE

YEARS 1885 AND 1886.

BROUGHT DOWN TO SEPTEMBER 30, 1886.

CHARLESTON,
JAS. B. TANEY, BMBLIC PRINTER
1886

MEMBERS OF THE BOARD.

FIRST CONGRESSIONAL DISTRICT.

G. W. BRUCE, M. D., MOUNDSVILLE.

W. M. LATE, M. D., BRIDGEPORT.

SECOND CONGRESSIONAL DISTRICT.

C. T. RICHARDSON, M. D., *President*, CHARLESTOWN.

N. D. BAKER, M. D., MARTINSBURG.

THIRD CONGRESSIONAL DISTRICT.

GABRIEL McDONALD, M. D., UNION.

LAWRENCE CARR, M. D., CHARLESTON.

FOURTH CONGRESSIONAL DISTRICT.

A. R. BARBEE, M. D., POINT PLEASANT.

T. A. HARRIS, M. D., *Secretary*, PARKERSBURG.

REPORT OF SECRETARY.

OFFICE OF SECRETARY,
STATE BOARD OF HEALTH OF WEST VIRGINIA,
PARKERSBURG, W. VA., January 1, 1885.

TO HIS EXCELLENCY, E. WILLIS WILSON,
Governor of West Virginia:

SIR: In compliance with the law, I have the honor to make to you the fifth annual report of the State Board of Health.

The work the Board in the past year has been extremely gratifying in its preventive measures, whereby I have to report no special prevalence of infectious disease in the State, either among the people or the stock of the State.

Since the last report made to the Executive, there have been several important changes made in the Board. Dr. James Reeves, of the First district, resigned his position as a member of the Board, whereby the State has lost the services of a most active and useful servant, and the Board has been deprived of a most capable and efficient Secretary. Dr. L. D. Wilson was appointed to fill the vacancy thus created in the First district, and Dr. T. A. Harris was elected to fill the position of secretary, made vacant by the resignation of Dr. Reeves. Dr. C. T. Richardson, of Charlestown, Jefferson county, was elected President of the Board. These changes were made at a meeting in Wheeling, February 23, 1885, called by the President in consequence of the resignation of Dr. Reeves.

I am glad to be able to report, that in the past year there has been a marked exemption in the State from any infectious diseases. The dreaded scourge, Asiatic cholera, has not reached our shores, thanks to a merciful Providence and the active efforts of sanatarians to guard against its introduction into our country. The recognition of the virus of cholera as an actual entity, and the further fact, that it never occurs in any locality unless its germ is brought there, either by persons or their effects coming from an infected locality, has added increased activity to the efforts of sanatanians to guard against its introduction, and has given an intelligent direction to their efforts. Its extensive prevalence during the past summer in certain European countries, with which we have intimate commercial connections, warns us that the danger is not yet over, and that it behooves us as a nation to redouble our watchfulness. In Spain, during the past summer, there were 274,208 cases, with 101,573 deaths—a mortality of nearly one half—showing us clearly the importance of preventive measures against so fatal a disease. I think, it is not out of place, just here, to renew the recommendations adopted by the National Health Conference, held in Washington, December 10, 1884, and printed in the last year's report of this Board—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.

Our neighbor, Canada, has been afflicted by an epidemic of small-pox, which has prevailed with great virulence, especially in Montreal, where over 3,000 deaths have occurred, at a loss to the city of hundreds of thousands of dollars. The extent and fatality of the disease in that city has been largely due to the ignorance and prejudice of the French Canadian populace. The border has been so effectually watched and guarded by the respective State Boards of Health, aided by the U. S. Marine Hospital service, that the scourge has gained no foothold within our borders, the few cases that have so far gained admittance having been stamped out at once. The precautions taken during the past year in the general interests of hygiene and as preventives against the possible occurrence of Asiatic cholera have more than repaid all cost and trouble in the diminished death-rate. The effect has been very marked in many places, notably in the State of Michigan, where well kept statistics have enabled a comparison to be made as to the death rate for the past seven years.

Our State during the past year has been markedly exempt from any prevalent disease. In Clay county during the past summer, at one time, an epidemic was reported as prevailing on Sycamore creek. The local health board investigated the matter and found malignant dysentery prevailing, due to the impure condition of the water in use. By proper steps it was soon brought to an end.

Some disease was reported among the cattle of J. H. Carskadon, of Mineral county. An investigation by the local board developed the fact of its local and non-infectious character. Some disease, suspected of being pleuro-pneumonia, was reported from Jefferson county. An investigation developed the fact that it was of very doubtful character, very limited in extent, and soon terminated. I would here respectfully call your attention to the fact that certain western States have very unjustly, as it seems to me, quarantined against the cattle from our State, where no authenticated cattle disease prevails, to the great inconvenience and loss of our people, at the same time that cattle and hogs from the west, where disease is known to prevail among their stock to a great extent—notably hog cholera in Nebraska and Iowa—are shipped in great numbers through our State; the droppings from which cattle or hogs, either in transit or at their fixed feeding places, is very liable to introduce their diseases within our State and to communicate itself to our cattle and hogs, the dejecta from diseased hogs or cattle being the most ready and usual means of communicating their disease.

What precautions may be proper against the introduction of hog cholera and Texas cattle fever, I will leave to the discretion of Your Excellency. So far no certain means of treating these diseases is known to science. The best provision, seems to be the careful isolation of the well animals, from the sick, and the destruction of the sick with their dejecta, it being well established that these diseases never occur "*de novo*," but are contracted from animals already diseased.

There have been several cases of illegal practice in the State by unregistered persons, most of which have been abated without trouble.

In Taylor county there is a notable case of defiance of the law, on the part of one Longstreth (a root doctor) whom the grand jury at its November term failed to indict, though it was shown that he was practicing medicine, and was not registered at all. Some of the jury "thought he was a very good doctor." There seems to be, on the part of some of the county officers an indisposition to enforce the law in this matter, and as to the collection of the license tax from itinerants —rather leaving it to the medical officers of the local boards to look after the matter, whereby the State loses part of its revenue.

The non-occurrence of any epidemic infectious disease has spared the Board the necessity for using the sum of $500.00, appropriated by the last legislature, to be used by the Board, in the event of any such emergency, but the small amount of money at the disposal of the Board has compelled them to exercise a very rigid economy in expenditure lest in the event of any emergency, they should find themselves crippled for want of means, to meet the urgent needs of the occasion. This has compelled them to abstain from the publication and distribution among the people, of many valuable articles on the subjects of school hygiene and general sanatation, subjects upon which, many of our people are grossly ignorant. If it be not out of place, I would earnestly recommend the introduction into the common school curriculum of the study of hygiene, whereby the children's minds may be impressed, and much information carried home by them, to the edification of their parents.

Within the past year several other States have enacted laws organizing State Boards of Health, and it is to be hoped that ere long there will be Boards in all the States, which, by harmonious and concerted action, may enable them to confine infectious diseases to the locality of their origin, and to stamp them out.

In the early part of the year it was found that many of the counties of this State had no local Health Boards, owing to the failure of their courts to nominate to the State Board suitable persons for appointment. I have made strenuous efforts to correct this matter, and now can report local Boards as having been organized in all the counties except Brooke, Braxton, Boone, Hancock, Lincoln, Mason, Pendleton, Raleigh, Upshur, Wayne and Webster. The extremely interesting and valuable reports made by other State Boards of Health, based upon the regular returns from the County Health Boards to the State Board, as to the prevalence of infectious diseases, and also the reports of births and deaths, with cause thereof, make it particularly desirable that we should obtain from our County Boards the reports required of them by law. So far the reports are very fragmentary and of little value. By an urgent demand upon the local Boards for such returns, I hope soon to be able to furnish valuable statistics as to the healthfulness of our State. The failure of the Legislature at its last session to make any provision for a supply of vaccine virus for the State, has made it necessary that the County Boards should apply for aid to their respective courts. This being what is called "smallpox year," and the existence of smallpox at various points within our own country, and its prevalence in Canada and many European countries with which we have intercourse by means of emigrants, warns us to provide against its possible introduction. It is useless at this day to demonstrate the contagious nature of smallpox. The fact that it is only contracted by infection from one having it, and its certain prevention by vaccination—these are facts that go without saying. It is known to all intelligent, civilized people, and equally demonstrable, that in a given case, it can be stamped out by proper sanatary action on the part of the local authorities. The lesson taught bythe epidemic of typhoid fever in Plymouth, Pa., where the disease communicated by one sick person through the medium of drinking-water, infected a whole town, causing thousands of cases of sickness and hundreds of deaths within a very short time, should not be lost upon us. A sick man came from Philadelphia; in the cold and frozen weather the operations from his bowels were thrown upon the ground, frozen, but not destroyed; the warm weather, with the warm rains, came; the discharges were washed down into the the source of the drinking water of the town. A plague—typhoid fever—broke out, costing the town the lives of many of its valued citizens, besides destroying its commercial prosperity and entailing a heavy expense upon it,—all from one neglected case of typhoid fever.

REPORT OF SECRETARY.

PARKERSBURG, W. VA.,
October 1, 1886.

TO HIS EXCELLENCY, E. WILLIS WILSON,
Governor of West Virginia :

In compliance with my duty as Secretary of the State Board of Health, I make the following report of the transactions of the Board for the two years 1885-6, which I hope it will meet your approval to publish. The last published report of the transactions is for the year 1884.

On the first of January, 1886, I reported to you that the year 1885 had been a healthy year within our State, marked by the prevalence of no violent epidemic, but the occurrence of the usual diseases incident to our section, though they were characterized by a mild type and low rate of mortality. Much attention has been paid in the State to general sanitary measures, which has not been without effect. I therefore take pleasure in again reporting a generally healthy condition and an absence in the past year of any special prevalence of disease, and a generally healthy condition of our State. There is a growing disposition on the part of the people to inform themselves as to the means necessary to the preservation of health, and a desire for sanitary information, which will bear fruit in an improved condition of general health. Such means as have been at the disposal of the Board has been availed of for the purpose of aiding this desire on the part of the people, and of still further inciting it. The records and correspondence of this office show many evidences of an increasing interest in the matter. The Board has been fortunately spared the necessity for active interference in any outbreak of contagious disease, either among the people or the stock of the State.

The growth of interest in public health matters is evidenced by the fact that thirty-one States of the Union now have regularly organized State Boards of Health, each one of which may be able to accomplish some little in the way of sanitation; but their united effort will be of more avail, for the study of the subject is making it more and more apparent that in the way of prevention there are possibilities undreamed of until within the past few years.

Yet it is painfully evident that under all ordinary circumstances sanitation is a science of slow growth. Statistics clearly prove that, through improved sanitary conditions, the lives of men have been prolonged within the last generation; yet men are prone to accept the existing condition of things as their natural heritage which may be held by them without effort at improvement, and are slow to respond to the requirements for further advance.

HEALTH BOARDS.

Special effort has been made at the organization of county Health Boards throughout the State, but with only partial success. There has been found no difficulty in the way of securing capable and efficient members for such boards but the county courts have shown but little interest in the matter, and in many instances fail to afford to their county boards the official support necessary for their maintenance, whereby the members of the board, vainly trying to accomplish an object of public utility at their own expense and (often) inconvenience, become discouraged. I would therefore suggest that some means be devised to increase the efficiency of the County Boards of Health.

REGISTRATION.

The value of a careful registration of births and deaths in the State with the causes of death arranged by ages, and sections of State, and the many other incidental circumstances connected therewith, can hardly be over estimated as a means of comparison of our State with others, and also of one year with another. The relative prevalance and fatality of certain diseases in different years, and in the different sections of the State. I would therefore suggest the more careful collection of all facts as bearing upon this subject and also to make it include marriages and divorce, and further that the secretary of the State Board of Health be made *registrar of vital statistics* with the view to the preparation of a report upon the subject in connection with the health report as is done in many other States.

CHOLERA.

At the date of the last report an apprehension of invasion of Asiatic cholera was felt by sanitarians generally, as the disease was still prevalent in certain European States. It has continued its ravages but to less extent than in the previous year, but has fortunately been kept out of this country, a result mainly due to the watchful care of the national authorities. The fund appropriated and placed at the disposal of the Board of Health to meet the emergency of such an invasion is intact, *not one dollar* of it has been drawn by the board from the State treasury.

CONTAGIOUS DISEASES AMONG ANIMALS.

No epidemic has occurred among the stock of the State, though very grave apprehension has been felt on this account because of this importation and transit of vast numbers of cattle from States where pleuro-pneumonia prevails, as among the cattle of Illinois, Indiana, New York, New Jersey, Pennsylvania and Maryland. Glanders among the horses of Minnesota and of Indiana. Hog cholera in Iowa, Illinois and Indiana. Stock from many of these States in great numbers are constantly in transit through our State liable to infect our stock by their droppings along the railroads, especially at their stated feeding places where no special precautions are taken.

HYGIENE.

I would respectfully suggest the introduction of the study of Hygeine into the curriculum of our public schools and the making its study compulsory, adapting it to the various grades and classes.

I herewith submit report of the transactions of the Board for the years 1885-6 and also certain other papers relating to health matters which I trust you may deem of sufficient public interest to publish.

Very Respectfully,
T. A. HARRIS, M. D.
Secretary State Board of Health.

FINANCIAL STATEMENT.

PAYMENTS MADE TO MEMBERS OF THE BOARD.

Jan 27, 1885,	To Dr. T A Harris	$	16 25
Feb. 23, 1885,	To Dr. J E Reeves		73 75
	To Dr. W. M. Late		54 00
	To Dr. C. T. Richardson		49 00
	To Dr N. D. Baker		35 30
	To Dr T A Harris		22 50
July 9, 1885,	To Dr. G McDonald		32 75
	To Dr W M Late		65 00
	To Dr C. T Richardson		57 40
	To Dr. T A. Harris		211 34
	To Dr. A R. Barbee		38 55
	To Dr. L. Carr		39 97
Oct 5, 1885,	To Dr T A. Harris		125 00
	Total	$	820 91

PAID INTO THE STATE TREASURY

April 17, 1885,	By Dr L D Wilson	$	10 00
April 21, 1885,	By Dr L. D. Wilson		10 00
July 16, 1885,	By Dr. T A. Harris		40 00
	Total	$	60 00

TRANSACTIONS OF THE BOARD IN SESSION.

Pursuant to a call from the President, the State Board of Health met at Wheeling February 23, 1885. Present, Drs. Harris, Richardson, Late and Wilson.

The President stated that having been notified of the resignation of Dr. James E. Reeves from the Board he had called this meeting to elect a secretary to fill the place made vacant by the resignation of Dr. Reeves, and to transact any other business that might be brought before the Board. He then read the following letter from Dr. Reeves to Gov. Jackson, having first asked Dr. Baker to act as secretary *pro tem* :

WHEELING, W. VA., Feb. 5, 1885.

To His Excellency, GOV. J. B JACKSON :

DEAR SIR :—The fear which I expressed to you many weeks ago, that I should not be able, because of my poor health, to continue in the service of the State to the end of my official term (1888) I find to my inexpressible sorrow fully realized much sooner than I had expected. I am therefore compelled to lay down the office, with its honors, which you conferred upon me in January, 1881, and beg that you will accept my resignation, to take effect Wednesday, the 23d inst., at 12 m.

Let me tell you truly that I can find no words to fitly express my regrets that I am compelled to retire from the State Board of Health, for God knows how earnestly my whole heart is engaged in the work.

From the date of the organization of the Board to the present, my association with my colleagues has been a source of continued pleasure ; and from Your Excellency I have received many kindnesses which greatly encouraged my labors, and for which I shall never forget to feel grateful ; indeed I am under many and lasting obligations to the officers of each department of the State goverment for courteous acts.

Finally, need I assure you of my continued interest in the cause of the public health ? In the higher, and higher standard of the medical profession in our borders ? And in West Virginia's prominence in the cultivation of sanatary science ? All these are too near my heart to be neglected or forgotten. Believe me

Very truly yours, &c.,

JAMES E. REEVES.

The letter of Governor Jackson to Dr. Reeves was then read, in which he expressed his regret at the loss to the Board of his efficient services, and his personal regret at the circumstances which made such a course on his part necessary. The Board then passed the following resolution:

"That this Board is fully sensible of the eminent services of its late Secretary, Dr. J. E. Reeves, which have contributed so much in directing its successful labors; and we regret exceedingly that ill health has compelled him to resign a position which he has held with so much advantage to the State and credit to himself."

The first business before the Board was the election of a Secretary to fill the vacancy occasioned by the resignation of Dr. Reeves. Dr. T. A. Harris, was unanimously elected Secretary. The election of Dr. Harris, Secretary andhis acceptance of the same made vacant the position of President. Dr. C. T. Richardson was then elected President.

There were received through the Hon. J. W. McCreary, papers from W. P. Payne of Perrysville, W. Va., with application for license from J. W. Hollbrook on the ten year basis—the papers were directed to be returned to Hon. J. W. McCreary to be presented to the Board for the Third District.

Applications with nominations received from Roane county, for County Board: The Secretary was directed to issue necessary certificates of appointment to said County board.

The Board then fixed the next place of meeting at White Sulphur Springs, and adjourned.

JULY 8, 1885.

The State Board of Health met at its regular annual meeting on the second Wednesday in July 1885, at Charleston, the place of meeting having been changed from White Sulphur, by common consent.

Present, Drs. Richardson, Tate, Carr, Barbee, McDonald and Harris. President Richardson in the chair.

The Secretary then read the following report.

GENTLEMEN: I would respectfully report, that in the past six months there have been registered by the Secretary thirty-five graduates of medicine. Four licensed to practice on the ten-year plan and three examined; to all of whom proper certificates have been issued.

Upon assuming the duties of the office, I found over thirty counties in which there were no county boards organized, as evidenced by registry on the Secretary's books. I wrote to the clerks of the courts in these counties calling attention to the fact, and asking that the courts nominate suitable persons for the position. Most of the courts have done this, and the appointments have been made, and the certificates issued to the members of the county boards. I have written to all the county boards in the State calling their attention to sections 6, 7 and 8 of chapter 150 of the Code, as defining their duties, and asking a strict attention to their duties; and also asking them to obtain from the physicians of their counties a report of the births and deaths, with the cause of death.

I would report that the only returns received have been from the County Board of Brooke county and from the health officer of Parkersburg.

Certain papers have been received which I desire to submit to the Board for their consideration. * * * I would respectfully submit that the Board consider the application at this late day, of parties desiring license to practice under the ten-year plan.

Within the past year, boards of health have been organized in several additional States, Maine, Kansas, Iowa, Indiana and Pennsylvania, from whose secretaries I have received letters asking for copies of our transactions and of our law of organization. I have also received reports and papers from quite a number of State Boards already organized, showing an activity and zeal I wish we might emulate.

The re-appearance of the cholera in Europe this year, and the probable extension of it to this country, make it proper that this Board should consider the matter, and decide on what steps if any shall be taken to prevent its introduction in this State, or to prevent its spread if it should unfortunately gain a foothold in our borders

In response to the suggestion of the Governor to the Legislature at its last session, to put $3,000.00 in the hands of this Board to be used for such an emergency; the Legislature did appropriate $500.00 to be paid on the order of the Board for this purpose. I would respectfully ask the Board to instruct its Secretary what action he shall take in the event of such an emergency; how the money shall be drawn and how used.

A large majority of the Board having expressed in writing to me a desire to change the place of meeting from the White Sulphur Springs to Charleston. I notified all the members that this meeting would be held at Charleston onthe 8th of July, 1885.

Respectfully submitted,
T. A. HARRIS, *Secretary.*

Dr. L. Carr read an interesting report as to the sanitary work done in his district the past year.

In a discussion as to the propriety of registering at this late date men who claimed to have practiced for ten years prior to March 1, 1881, it was considered that the law is mandatory, and the board have no discretion, if the party applying can establish the facts. The Secretary was directed to obtain the opinion of the Attorney-General on the subject and to notify the boards of that opinion.

On motion of Dr. McDonald it was directed that any part, or the whole of the emergency fund of $500.09 appropriated by the legislature may be drawn by the Secretary upon the approval of the President, and applied to the prevention or suppression of any epidemic contagious disease

G. W. Morgan, D. Peterson and H. F. Asbury were examined for certificates to practice. After careful examination G. W. Morgan was accepted. The others were rejected. The secretary was directed to notify the parties of the result from his home office.

Dr. McDonald offered the following resolution:

Resolved, That the inadequate provision for the care of the unfortunate insane confined in the jails of the various counties is such that the State

Board of Health feel it incumbent upon them to direct their Secret y to call the attention of the Governor to the same in his annual report and to recommend that some action be taken to relieve or properly care for this unfortunate part of our fellow men.

Adopted.

Dr. Barbee moved that the local boards of the several counties of the State be directed to make a thorough examination of their jails and almshouses, and make a sanatary report to their respective County Courts semi-annually, and annually to the Secretary of the State Board of Health. Adopted.

The Board then adjourned.

JULY 14, 1886.

At the regular annual meeting of the State Board of Health held in Charleston July 14, 1886, there were present Drs. Richardson, Baker, Barbee, Late, Wilson, Carr, Harris and McDonald.

The Secretary presented the following report:

GENTLEMEN:—It is again my duty to report to you the transactions of my office since our last meeting.

The past year in our State has been one of unusual healthfulness. The apprehension of an invasion of cholera entertained by the Board at its its last meeting was averted, thanks to a merciful Providence and the precautionary measures taken by the National authorities. The disease after ravaging Spain and the southern coasts of Europe was confined to a comparatively limited district. The pestilence, whilst kept under some control, was not eradicated, and now prevails in some of the cities of Southern Europe, warning us that the danger is not past and that we should not relax our precautions against its advance.

The attack of smallpox, which prevailed with such malignancy and fatality in Canada, was controlled by the authorities, and kept out of the United States by the active efforts of the Boards of Health of the border States aided by the National authorities; but should serve as a warning to us of the need of a regular and systematic practice of vaccination, for in these days of rapid transit no one can tell at what moment we may be exposed to the danger of its introduction into our State.

There has arisen no occasion to use the appropriation made by the Legislature to meet the emergency of a sudden epidemic and not one dollar of it has been drawn by the Secretary.

Throughout the State there have prevailed the usual diseases, but they have been marked by mild character, and a low rate of mortaily. There has been some typhoid fever, typhoid dysentery and typhoid malarial fever which I think has been generally traceable to some defect in the water supply.

Several of the western States have quarantined against the cattle of West Virginia, but I have been able to learn of no disease prevalent among the stock of the State, unless it was among the cattle of Jefferson county It seems to me that it would be more reasonable for us to quarantine against the cattle, hogs, and horses of the western states when pleuro-pneumonia, hog cholera and glanders confessedly exist; and which may at any time be introduced by the droppings from the stock in transit, through our State on railroads and at their feeding places.

I have worked strenuously at the organization of the County Boards in the different counties, but have had to contend against indifference on the part of the county courts to the matter; who in the first place seem reluctant to name suitable parties for the appointment; and after County Boards have been appointed the courts seem unwilling to make the necessary provision to pay their own Boards for their necessary expenses. Then in turn the parties appointed on the County Boards are reluctant to perform the duties assigned to them when it must be done at their own expense and loss of time.

The Board at its last meeting instructed its Secretary to direct the different County Boards to inspect their jails and county houses and to report to their county courts and to the Secretary of the State Board. Such notice and instruction was sent to them all, but the only report was from Wood county which is herewith submitted.

The Secretary was directed to ask the Attorney-General whether the law as to registering ten year practitioners at this late date is mandatory. His written opinion is herewith submitted, from which it will be seen that if the requirements of the law are complied with, the Board has no discretion in the matter.

The Secretary has had some correspondence with Columbus Medical College, through its attorney, the Hon. G. L. Converse, in regard to the refusal of this Board to register the graduates of the Columbus Medical College, which correspondence is herewith submitted.

With the Dean of the faculty of the Jefferson Medical College of Philadelphia, he has also had some correspondence growing out of the fact that it was reported to him that said College had after an attendance upon only one conrse of lectures granted a diploma to a party from Wheeling. This correspondence is herewith submitted.

In face of the resolutions passed by this Board at its fourth annual meeting, defining its minimum requirement for registration, I have not felt authorized to register the graduates of Jefferson Medical College of the session of 1886, but notified the members of the Board and asked that the matter be suspended until the Board could take action upon the matter.

Dr. A. R. Barbee notified me of certain correspondence he had had with the chairman of the faculty of Louisville Medical College of Kentucky, and sent me the correspondence which is herewith submitted.

In consequence of this correspondence I have felt constrained to treat Louisville Medical College in the same way as the Jefferson Medical College.

A certificate for Dr. Reese, a graduate of Louisville Medical College was made out and sent to me for registration. I herewith submit it for the action of the Board; shall it be delivered to Dr. Reese? or shall he be required to pass an examination as a non-graduate?

On the first of January I made a report to the Governor, a copy of which is herewith submitted.

In the past year, *i. e.*, from July 1st, 1885, to July 1st, 1886, there have been registered fifty one graduates, three examined and fifteen ten year men, a list of whom is herewith submitted.

The correspondence of the office is quite large in the way of inquiries from the doctors over the State and of a miscellaneous character as is evident by the amount of postage charged.

I have distributed nearly one hundred copies of the printed transactions of the Board to the County Boards and to the physicians in the State and to other Health Boards.

I have received quite a number of additions to the library of the Board, a list of which is herewith submitted.

The expenses for the Board for the year 1885 amounted to $822.91. So far for the year 1886, they have amounted to $250.00.

I would respectfully suggest that the only way to awaken an active interest in sanatary matters in the State is by educating the people in these matters; teaching them that it directly concerns themselves, their families and their stock; and I know no way so effective in doing this as by distributing among them statements and facts on the subject and I would therefore suggest that with the approval of the Governor the entire amount of the appropriation, ($1,500.00) over what is required to meet the necessary expenses of the Board be expended in scattering such information among the people.

I must now remind the Board that its first duty is to elect a Peesident and Secretary for the next two years; the present incumbents holding the unexpired terms of their predecessors, which terms expire to-day.

Respectfully submitted, &c.,

T. A. HARRIS,
Secretary.

The Board then proceeded to the election officers:

Dr. C. L. Richardson, of Jefferson county was re-elected President; Dr. T. A. Harris, of Wood county, was re-elected Secretary.

The following letter was received and read:

CHARLESTON, W. VA., July 14, 1886.

"*To the Members of the State Board of Health:*

GENTLEMEN:—After consultation with several of the prominent men of your State in reference to the action of your Board several years ago excluding the graduates of Columbus Medical College from the practice in your State on terms of equality with similar institutions, that institution at my earnest solicitation has appointed a committee who have come with me to your Capital to ask a rescinding of that order. At what time would it be convenient for you to talk over the matter with us?

Very Respectfully,
GEO. L. CONVERSE.

To this the Board at once replied as follows:

Hon. Geo. L. Converse:

DEAR SIR:—Yours of the 14th inst. just received. In reply the Board direcis me to say: That preliminary to any discussion of the matter at issue, a written apology and complete retraction of the various offensive articles published by the Columbus Medical College, especially by Dr. Hamilton, with reference to this Board and its officers, will be required by this Board.

Respectfully, &c.,

T. A. HARRIS,
Secretary, State Board of Health, W. Va.

To which the following reply was received:

CHARLESTON, W. VA., July 14, 1886.

To the President and Members of the State Board of Health:

GENTLEMEN:—Your note is just received. Its contents show a case of mistaken confidence on the part of your friends who advised me that your Board was desirous to do justice towards the Columbus Medical College, if any injustice had been done it; and mistaken confidence on my part in urging the College to seek an interview with you for such a purpose. They and I, have had only the motive to promote friendship and strengthen the ties between adjoining sister States. The original order against the College was made without notice and without opportunity to present the other side. The College has never had such an opportunity, and even now you are unwilling to hear, for of course you know your terms were equivalent to a refusal. Your Board is not a mere medical society or association representing the will and feelings of its members, but it is a State institution, and you place your State in the attitude of making *ex parte* orders against an institution of a sister State without notice, and afterwards refusing to inquire or even to hear proof when it is offered on the part of those who have been wronged.

Very Respectfully, &c.,
GEO. L. CONVERSE.

To this communication the Board replied through the messenger that "there was no answer."

The following resolution was passed:

"That this Board in its strictures upon different medical schools is actuated by no personal feeling or hostility towards any school which may have fallen short of the requirement of this Board, or of their own schedule; but will register the diplomas of these schools whenever it shall be made evident that they do, and intend to, live up to the full requirement of this Board.

The Secretary was directed to send a copy of this resolution to all schools affected by the action of this Board.

It was further

"*Resolved*, That the acceptance by any medical school of a certificate of examination granted by this Board in lieu of one course of lectures shall be considered to meet the requirements of the Board."

The Secretary was directed to send certificate to Dr. Reese.

The Secretary was directed to call the attention of the Louisville Medical College to the irregularity manifested in the correspondence of its chairman.

The Secretary was directed to inform Jefferson Medical College of the resolution in regard to the acceptance of the certificate of examination by the Board in lieu of a first course of lectures.

The Board then adjourned to meet at Charleston the second Wednesday in July, 1887.

CORRESPONDENCE.

The following letter from the Attorney-General will explain itself. It was written in reply to certain questions asked by the Secretary of the Board:

WHEELING, W. VA., Nov. 28, 1885.

Dr. T. A. Harris, Secretary State Board of Health:

DEAR SIR:--Your letter would have had an earlier reply but for the sickness in my family.

I am of opinion that certificates must be granted and registered for applicants under the second class, or ten year practitioners, if they comply with the requirements of the law. I do not know of any provisions limiting such applicants to any specific time in making application; until their rights to the certificate are taken away by law, if they comply with and bring themselves within the provisions of the act, they have an undoubted claim to the certificate, and the Board has no discretion in the matter, but must recognize their rights to the certificate and its registration.

I agree entirely with the opinion of the Attorney-General of Illinois upon the question of necessity of the State proving that the accused has no certificate, &c. Such proof is unnecessary on the part of the State. If the accused is shown to have practiced medicine in the county where the proceedings are instituted, it is incumbent upon him to show his certificate of authority.

I do not see any necessity or propriety in requiring your attendance before grand juries. There is an express provision of our laws that witnesses before grand juries get no compensation.

As to your Taylor county case, the action of one grand jury is not final. The case may be presented to the next grand jury. If the prosecuting attorney is really in earnest in the prosecution there should be no serious difficulty in bringing the case to trial. I believe the foregoing answers all the matters inquired about by you as fully as I can at present. I am, therefore,

Yours very truly,
ALFRED CALDWELL.

COLUMBUS MEDICAL COLLEGE, OHIO.

The following correspondence was had with the Hon. Geo. L. Converse, attorney for Columbus Medical College:

COLUMBUS, O., Sept. 25, 1885.

Dr. T. A. Harris, Secretary State Board of Health, Parkersburg, W. Va.

MY DEAR SIR:—I am informed that the State Board of Health, sometime in 1880 or 1881, made an order and entered the same upon its records prohibiting graduates from the Ohio Columbus Medical College from practicing medicine and surgery in your State. If such is the case, it is an act of great injustice to a large number of learned and experienced physicians in this and other States; some of whom stand at the very head of their profession in Ohio, and are recognized in other States as occupying a front rank. Will you be kind enough to examine the recorde and send me a copy of the record relating to it with a statement of the amount of charges, and I will remit to you. My object is to take such steps as may be necessary to secure a revocation of any such order, and a just recognition by the Board of the worthy men who are being wronged thereby. I should be greatly obliged to you for any suggestion as to when and where I can get a hearing, and as to the best mode of proceeding to accomplish the object I have in view. I will refer you to Senator Camden, of your city to answer any inquiries you may wish to make about me. I have some acquaintance with your Governor.

Very Respectfully, Yours,
GEO. L. CONVERSE.

In reply to which a copy of the transactions was sent with that portion of the record marked to which reference had been made, and Mr. Converse was informed that the Board would not meet until the second Wednesday in July, 1886, unless called together for some special purpose, and no such meeting was at present anticipated. On April 21, 1886, the following letter was received:

COLUMBUS, OHIO, April 20, 1886.

Dr. Thomas A. Harris, Secretary State Board of Health, Parkersburg, West Va.:

DEAR SIR:—I had some correspondence with you during the fall or winter in relation to the orders of your Board against the graduates of the Columbus Medical College, in which I understood that the regular meeting of the Board is in July. The College is about to publish its annual catalogue, and would be glad to be able to publish in it, the action of the Board on that old order. Will you call a meeting of the Board for the purpose of considering the question anew; I supposed the Governor called special meetings of the Board, but in a recent letter he refers me to you. I suppose the College would be willing to pay any additional expense made necessary by reason of the called meeting.

Very Respectfully Yours,
GEO. L. CONVERSE.

To which the following reply was made:

PARKERSBURG, W. VA., April 21, 1886.

Hon. G. L. Converse:

DEAR SIR:—Yours of April 20th just received. I will send it to the President of our Board for his consideration. I do not feel authorized to call a special meeting of the Board for the purpose you indicate. It is not a matter that concerns the State. I can not thus put either the State or the members of the Board to the trouble or expense. Nor can I forecast the action of the Board when the matter comes up for consideration, if it should be presented to them at their meeting in Charleston on the second Wednesday in July. The Board is not unmindful of the indignities offered to it by the Columbus Medical College in its various publications, notably the articles from the pen of Dr. Hamilton, in reference to its official action, in the public prints of this State and Ohio, some retraction or apology for which should be made equally public before the action of this Board should be reconsidered. I merely call your attention to this fact for your consideration.

Very respectfully,

T. A. HARRIS,

Secretary State Board of Health of West Virginia.

To which no reply was received.

JEFFERSON MEDICAL COLLEGE, OF PHILADELPHIA, PA.

On the 12th of April the following letter was written by the Secretary:

PARKERSBURG, W. VA., April 12, 1886.

Dr. R. Bartholow, Dean of Jefferson Medical College:

DEAR SIR:—My attention has just been called to the fact that a diploma has been granted to G. I Garrison, of Wheeling, in this State, by your college, after an attendance upon only one course of lectures. I write to you to ascertain the facts in the case. The State Board of Health in this State at its fourth annual meeting at Parkersburg in July, 1882, passed certain resolutions which you will find on page 40 of the volume of transactions, a copy of which I herewith send to you. If I am correctly informed (which I hope I am not) you will at once see that the Board cannot without stultifying itself treat the Jefferson Medical College other than it treated the Columbus Medical College, of Ohio, or the American Medical College, of Missouri, and than it proposes to treat the Louisville Medical College, of Kentucky, all for the same offence. I have notified all the members of the Board of the circumstances, and will be pleased to hear from you that I may present all the facts to the Board at its annual meeting in Charleston on the second Wednesday in July. The party G. I Garrison holds the certificate of license from the Board to practise in this State. Said certificate was granted him after an examination by the Board very soon after its organization, when examinations of physicians already practicing were very trivial—such as would not be accepted by the Board to-day. He was then a resident of Wetzel county, in this State. Of course we can not withdraw our certificate granted to him at that time, but the action of the Board will apply to all diplomas granted by the Jefferson Medical College session 1885-6 and subsequent. Though I am not a graduate of the Jefferson, I matriculated there in 1854. I with other members of the Board have a very kindly feeling for "Old Jefferson," and we can but regret this act and the necessity for action on our part, and so hope the matter may be amicably adjusted.

Very respectfully, &c.,

T. A. HARRIS,

Secretary State Board of Health of West Virginia.

In reply the following was received:

THE JEFFERSON MEDICAL COLLEGE OF
PHILADELPHIA, April 15, 1886.

Dr. T. A. Harris, Secretary West Virginia State Board of Health:

DEAR DOCTOR:—Accept my thanks for the very kindly terms in which you speak of our College, and still more for the disposition to be entirely just which you manifest. Let me assure you that no Medical College can conform more strictly than we do to the published terms of admission, and of requirement for the doctorate. The degree of M. D. is never given after attendance on one course of lectures. In the case of Dr Garrison, the apparent violation of this regulation, occurred in consequence of a mis-conception of the powers of your Board, we supposed that the certificate granted after examination by your Board had all the authority of a diploma and that Dr. Garrison who practiced under it, and acted as health officer of Wheeling, occupied the same position as a licentiate of one of the English Medical Corporations. When the question of Dr. Garrison's admission to the graduating class was submitted to the faculty, there was opposition to it, but when I explained that he had received a medical education, and had by reason of the license of your Board, issued after a rather rigid examination, all the powers and the legal status of a regular practitioner; it was agreed that he might be received on the same terms and conditions as the graduates of Medical Schools now are admitted. The facts then are these, Dr. Garrison presented himself with a license which had all the legal authority of a diploma. He was admitted to the senior or graduating class as a graduate. He was in immediate attendance upon the lectures, and carried on all the work, exacted of every graduate seeking a degree from this College. He submitted ample testimonials as to his character, and proof that he held the position of Health Officer of Wheeling. He passed an excellent written examination, and was graduated as Doctor. The only error consisted in assigning to your license the value of a diploma. This is the only instance in which such a mistake has been made. Surely under such circumstances you can hardly class us with Columbus College with which such acts are habitual; since your exposure of the Columbus school we have refused to recognize its diplomas. I trust my dear Doctor that my explanation is satisfactory and that your Board will not regard a single error of this kind as a permanent rule of condent.

I am very truly yours,
ROBERT BARTHOLOW, *Dean*.

P. S.—Will you please give me some exact information as to the legal value of your license. R. B.

To which the following reply was sent:

PARKERSBURG, W. VA., April 21, 1886.

Dr. R. Bartholow, Dean of Jefferson Medical College:

DEAR DR:—Your letter was duly received and I am glad to see that there was no intentional breach of the requirements made by your College of candidates for graduation. You ask me as to the exact legal value of our certificate of examination. You will see by reference to page 18 of the transactions sent you that there are three classes to whom certificates are granted, and before the law they are all equal. In my letter to you I used the term "trivial" as applied to the early examinations made by the Board. I desire to make some explanation. When the law went into effect (a law not framed to suit the Doctors, but a compromise) whilst there were many entitled to certificates under the ten year clause, there were many equally deserving who had practiced only nine, eight, seven, &c. years and the Board felt it their duty to deal leniently with them, as at that time no standard of examination had been fixed; so it was left discretionary with different members to decide what qualifications should be required, and under this rather lax rule many received certificates who could not comply with the present requirements of the Board. I make this explanation, for I did not wish to convey the idea that the Board played fast and loose in its examinations, or that the legal value of a certificate was a variable quantity. In face of the resolutions on page 40, I do not feel that I can register the Diplomas of the class of 1885-6, until the matter has been brought to the attention of the Board at its next meeting in Charleston on the second Wednesday in July; at which time I will submit our correspondence on the subject for their consideration, and will be pleased to lay before them any matter you may desire to present whereby I trust it may be arranged to mutual satisfaction and advantage. I am

Very Respectfully, &c.,
T. A. HARRIS,
Secretary State Board of Health, W. Va.

On the 12th of June, the following was received:

THE JEFFERSON MEDICAL COLLEGE,
PHILADELPHIA June 10, 1886.

Dr. T. A. Harris, Secretary State Board of Health, Parkersburg, W. Va:

DEAR DOCTOR:—In accordance with your suggestion, I restate our position with regard to the graduation of Dr. Garrison after one term of lectures. This is no longer a question with us, and Dr. Garrison is the only instance since I have been dean in which the indulgence has been asked. Dr. Garrison came to us, having the position of health officer of the city of Wheeling, and a licentiate of your Board after examination. I never hesitated to admit him to the graduating class as I would a licentiate of the society of Apothecaries of Great Britain or of Dublin, both having authority to practice medicine in England. I supposed your Board possessed the power to grant an authority which was the full equivalent of a Diploma, and when given after an examination, was not only evidence of qualification, but the proof that the individual holding the certificate, had had a medical education, although through some irregular channel. I had no intention to ignore your very proper regulations, and only erred in assuming that your Board had plenary powers in the matter of certificates to which we gave the authority of a Diploma from a recognized college. I trust that this explanation will be considered satisfactory by yourself and your Board.

Very Truly, &c.,
ROBERT BARTHOLOW, *Dean.*

To which the following reply was sent:

PARKERSBURG, WEST VA., June 18, 1866.

DR. R. BARTHOLOW:—Yours duly received, the matter will be submitted to the Board at its meeting July 14, after which I will notify you as to the result.

Respectfully, &c.,
T. A. HARRIS,
Secretary.

LOUISVILLE MEDICAL COLLEGE, LOUISVILLE, KENTUCKY.

In the latter part of March I received a letter from Dr. A. R. Barbee, telling that he had had a communication from H. F. Asbury, (who had been rejected by the Board after an examination) telling him that he had graduated at the Louisville Medical College of Ky., but had not received his diplomathough he could prove his graduation; and that upon the receipt of this letter from Asbury, he (Dr. Barbee) had written to the dean of the Louisville Medical College stating all the circumstances and asking for some explanation. He received the following letter with the accompanying certificate:

LOUISVILLE, KENTUCKY, April 1, 1886.

Dr. Barbee :

DEAR SIR :—I send you the certificate of Asbury, as you request. You state that this man has given your Board a good deal of trouble; he has given us no little. He attended his first course of lectures here and went home several times during the session. When he came this winter he also made occasional visits to his home, so that when he came up for examination we refused to let him come forward. He again returned home and brought with him numerous certificates and affidavits from a great many people, some of them officers of the county, all of them giving him a most excellent character, and stating that we would be doing an injustice to a poor and most worthy young man if we failed to pass him; I think that he must have written me over forty letters upon the same subject. Influenced by these representations, with the added entreaties of Dr. Cochran, we, against our better judgment, granted him his diploma upon the last day of the session. As a matter of course it is impossible for us to judge of the value of certificates candidates bring to us, for, as a rule, we are ignorant of persons writing them. It is seldom, however, that we have any trouble with one of our students, and we will be most happy to cooperate with your Board in any way you may suggest in preventing unworthy persons from studying medicine. We are as strict as any school that I am acquainted with, and far more so than most of them. In the future I shall send to you the names of every student from West Virginia at least two months before the close of the session, in order that you may, if you think proper, state any objection that you may have to them. If you or any of your Board have any objection to a candidate, that will be with us sufficient cause for rejection. Asbury passed a very fair examination.

Very respectfully,

EDWARD MILLER,
Secretary of Faculty.

Accompanying this was the following certificate sealed with the seal of the College:

LOUISVILLE, KY., April 18, 1886.

H. F. Asbury of West Virginia graduated in the Louisville Medical College session of 1885–86.

EDWARD MILLER,
Secretary of Faculty.

To this Dr. Barbee replied regretting the embarrassment to the College likely to grow out of this irregularity, it being manifest that Asbury had not attended *two full* courses of lectures. He received from Dr. Miller the following letter:

LOUISVILLE, KY., May 7, 1886.

Dr. Babee:

DEAR SIR :—You will please tear up or otherwise destroy the certificate I sent you as regards Dr. Asbury; as the Louisville Medical College has graduated no one of that name from West Virginia this last session. It was a mistake on my part as his name is not even on the Matriculation list.

Very respectfully your obedient servant,

EDWARD MILLER,
Secretary of Faculty.

The following letter was received at a later date by Doctor Barbee:

LOUISVILLE, KY., July 5, 1886.

SIR :—As we have been informed that you decline to issue certificates to our graduates on the ground that H. F. Asbury is a graduate of Louisville Medical College I beg leave to inform you that said Asbury is not a graduate of L. M. C. His name will not appear in the catalogue either as a matriculant or as a graduate. He has come on here, and brought suit against the College, both for a diploma, and for five thousand dollars damage, but I can assure you that he will get neither the diploma nor the damages. If you think it necessary we will send a member of our Faculty to meet your Board. Please answer as soon as convenient.

Very respectfully,

EDWARD MILLER,
Secretary of Faculty.

To Dr. A. R. Barbee, Member of State Boord of Health of West Virginia:

I received with this a note from Dr. Barbee telling me that he had written to Dr. Miller telling him that he had turned over all their correspondence to me; and he asked me to reply to the last letter from Dr. Miller which I did as follows:

PARKERSBURG, W. VA., Jvly 9, 1886.

Dr. Edward Miller, Secretary of Faculty Louisville Medical College:

DEAR SIR:—Your correspondence with Dr. A. R. Barbee, member of the State Board of Health, has been by him referred to me. I will lay it before the State Board at its meeting in Charleston on the 4th instant.

Respectfully, &c.,

T. A. HARRIS, M. D.,
Secretary S. B. H.

After the meeting at Charleston the following letters were sent:

PARKERSBURG, July 19, 1886.

Dr. R. Barthalow, Dean of Jefferson Medical College, Philadelphia:

DEAR SIR:—The incorrect report given out by the press as to the action of our Board at its recent meeting in Charleston prompts me to write to you at the earliest opportunity. The final result of the consideration of the matter of the graduation by the Jefferson Medical College of G. I. Garrison after an attendance on only one course of lectures was the passage of the following resolution: "That the acceptance by any medical college of a certificate given after an examination by this Board in lieu of one course of lectures shall be considered to meet the requirements of this Board." The hasty and erroneous report put out by the press is as much regretted by this Board, as it can be by any of those to whom it does injustice. Hoping that in future nothing may occur to interrupt mutually pleasant relations,

I am, very respectfully,

T. A. HARRIS,
Secretary S. B. H.

PARKERSBURG, W. VA., July 19, 1886.

Dr. I. A. Ireland, Dean of Louisville Medical College, Ky.:

DEAR SIR:—At the late meeting of the State Board of Health at Charleston, the attention of the Board was called to some irregularity in the graduation of H. F. Asbury of this State by the Louisville Medical College. The evidence of which irregularity is the possession by the Board of a certificate from the Louisville Medical College that he had so graduated; which certificate is sealed with the seal of the college and signed by Dr. Edward Miller, "chairman of the faculty;" also a letter from Dr. Miller denying that he had so graduated. The Board did not suspend the registration of the diplomas from the Louisville Medical College as was erroneously stated by the press but will await further developments. Your attention is respectfully called to the matter.

Very respectfully,

T. A. HARRIS,
Secretary S. B. H. W. Va.

PARKERSBURG, W. VA., July 19, 1886.

Dr. D. N. Kinsman,

DEAR SIR:—The State Board of Health of West Virginia, at its late meeting in Charleston, passed the following resolution, a copy of which I was directed to send to you: "*Resolved*, That this Board in its action with reference to the irregularities of certain medical colleges, is actuated by no feeling of hostility to them, but will be ready at all times to restore to recognition any such as may have given satisfactory evidence of an intention to maintain the standard of requirements adopted by this Board." The following resolution was also adopted at the same time: "*Resolved*, That the acceptance by any medical college of a certificate given by this Board, after an examination by the Board, in lieu of one course of lectures, shall be considered to meet the requirements of the Board."

The evidence that the Columbus Medical College does, and intends to, meet the requirements of these resolutions, I shall be pleased at any time, to lay before the Board for its consideration.

Very respectfully,
T. A. HARRIS,
Secretary S. B. H.

In reply to which the following letter was received:

COLUMBUS, OHIO, July 24, 1886.

T A. Harris, Secretary W. Va. State Board of Health:

DEAR SIR:—Your letter of the 19th inst., containing the resolutions passed by your Board at its last meeting, as well as the offer on your part to lay before the Board my assurance on the the part of the Columbus Medical College "That the College does, and intends to, meet the requirements of the Board," is received. I am ready to state, as Dean of the Columbus Medical College—1st, That in no instance since the case of Dent has Columbus Medical College varied a particle from the requirements of its announcement (which are enclosed); 2nd, In no instance shall it be done hereafter: 3rd, Columbus Medical College will endeavor to comply in all respects with the requirements of the Board of Health of West Virginia in so far as they relate to maintaining the standard of medical education; 4th, I recognize the graduation of Dent was irregular, and the action of the College in his behalf was not warranted by, but in conflict with our published announcement. Will you indicate anything further which I can do to further the solution of the difficulty between the Board and the College?

Yours, respectfully,
D. N. KINSMAN,
Dean of Columbus Medical College.

Upon receipt of this letter I at once sent it with the published announcement of their "requirements for graduation" to the several different members of the Board asking from each an expression of opinion as to whether that statement was sufficiently satisfactory to warrant me to notify Columbus Medical College that we would register their graduates. A majority of the Board having assented thereto on the 20th of September I addressed the following letter to Dr. Kinsman:

PARKERSBURG, W. VA., September 20, 1886.

Dr. D. N. Kinsman, Dean of Columbus Medical College:

DEAR SIR:—I have submitted your letter and the published announcement of the Columbus Medical College as to to its requirements for graduation to the different members of the Board of Health of this State. A majority of them have signified their willingness to register the graduates of Columbus Medical College upon the faith of the letter above referred to and said published announcement. I therefore have the pleasure of announcing to Columbus Medical College through its Dean, that from this time their graduates will be registered by this Board, the same as the graduates of other reputable medical colleges and we trust that in future nothing will occur to mar the good feeling and cordial support which this Board desires to cultivate with all reputable medical schools.

I am very respectfully, &c.

T. A. HARRIS,
Secretary S. B. H. W. Va.

About the 10th of August, I had a visit from young Dr. Hamilton, of the Columbus Medical College, to urge me to join in a call for an extra session of the Board of Health, for the purpose of reconsidering and revoking the resolutions passed in 1882 in regard to Columbus Medical College. He stated that the registering their graduates upon the basis proposed in the resolution passed by our Board at its last meeting in Charleston without a revocation of the resolutions of 1882, would not be satisfactory to his father. I declined to accede to his proposition of calling an extra meeting of the Board, as it would be putting the State to an extra expense and the Board to trouble about a matter that did not directly concern the State. He told me that he had seen Dr. Barbee, and would see Drs. Late, Baker and Richardson on the same subject. On the 15th of August, I received a letter from Dr. Richardson, telling me that he had had a visit from young Dr. Hamilton, telling him that Drs. Late, Baker and myself were favorable to a meeting of the Board for the purpose indicated in Dr. Hamilton's interview with me. I at once wrote to Dr. Richardson, telling him that there was a mistake, for I was opposed to such a meeting for such a purpose, and giving him my reasons as above indicated in my interview with Dr. Hamilton. On the 19th I received a letter from Dr. Richardson, telling me that he had consulted the different members of the Board, by letter, as to the propriety of calling a meeting for the purpose indicated ; and that a majority of them were opposed to it, whereupon I wrote the following letter ·

PARKERSBURG, W. VA., August 19, 1886.

Dr. D. N. Kinsman, Dean of Columbus Medical College:

DEAR SIR :—I have just received a letter from Dr. C. T. Richardson, President of the State Board of Health of West Virginia, in which he authorizes me to say to you that after consultation with the different members of the State Board, he does not think it advisable to call a special meeting of the Board to reconsider the resolutions passed by the Board in 1882, in regard to Columbus Medical College. So soon as I can hear from different members of the Board in relation to your letter of July 25th, I will inform you as to their willingness or unwillingness to restore the graduates of Columbus Medical College to registration.

Very Respectfully,
DR T. A. HARRIS, *Secretary.*

To which the following reply was received August 24th.

COLUMBUS, OHIO, August 20, 1886.

Dr. T. A. Harris, Secretary State Board of Health of West Virginia:

SIR :—I have to acknowledge the receipt of your letter of the 19th instant. I could not ask your Board to call a special meeting to consider the matter of the Columbus Medical College. Nor do I think it necessary. I shall await the individual action of the members of your Board in response to my letter with interest.

I am respectfully,

D. N. KINSMAN,

Dean of Columbus Medical College.

INTER-STATE NOTIFICATION IN INFECTIOUS AND CONTAGIOUS DISEASES.

The following resolutions, presented by the National Conference of State Boards of Health, were adopted by the American Public Health Association at Toronto, October 8, 1886:

WHEREAS, It is necessary for the protection and preservation of the public health that prompt information should be given of the existence of cholera, yellow fever and small pox; be it

Resolved, 1.—That it is the sense of the National Conference of State Boards of Health that it is the duty of each State, provincial, and local boards of health in any locality in which said disease may at any time occur, to furnish immediately information of the existence of such disease to boards of health of neighboring and provincial States and to the local board in such States as have no State Board.

Resovled, 2.—That upon rumor or report of the existence of pestilential disease, and positive definite information thereon not being obtainable from the proper health authorities, this Conference recommends that the health officials of one State shall be privileged and justified to go into another State for the purpose of investigating and establishing the truth or falsity of such reports.

Resolved, 3.—That whenever practicable, the investigations made under the preceding section, shall be done with the co-operation of the State or local health authorities.

Resolved, 4.—That any case which presents symptoms seriously suspicious of one of the aforesaid diseases, shall be treated as suspicious, and reported as provided for in cases announced as actual.

Resolved, 5.—That any case respecting which reputable and experienced physicians disagree as to whether the disease is or is not pestilential, shall be reported as suspicious.

Resolved, 6.—That any case respecting which efforts are made to conceal its existence, full history and true nature shall be deemed suspicious and so acted upon.

Resolved, 7.—That in accordance with the provisions or the foregoing resolutions, the boards of health of the United States and Canada represented at this Conference, do pledge themselves to an interchange of information as herein provided.

IRVING A. WATSON,

Secretary American Public Health Association.

INTER-STATE NOTIFICATION IN INFECTIOUS AND CONTAGIOUS DISEASES.

In addition to the resolutions presented by the National Conference of State Boards of Health, and adopted by the American Public Health Association, the following from the Advisory Council of the Association were also adopted:

WHEREAS, It is necessary for the protection and preservation of the public health that prompt information should be published of the existence of cholera, yellow fever and small-pox:

1. *Resolved*, That the American Public Health Association believes it to be the duty of each State and provincial board of health within whose jurisdiction one of these diseases shall appear, to give immediately notice of the existence of the same to neighboring State and provincial boards of health,

and to the boards of towns and cities in neighboring States and provinces which have no central board. In such States and provinces this duty of notification lies upon the local boards.

2. *Resolved*, That it is the sense of this Association that whenever rumors of the existence of pestilential disease in a State or province prevail and, upon application to the health authorities of said State or province, information respecting the truth of the rumor is refused, the health officials of another State or province are justified in entering the before mentioned State or province for the purpose of investigating and establishing the truth or falsity of such rumor.

In conducting the investigation, every reasonable effort should be made to cooperate with the health authorities of the locality

3. *Resolved*, That a case which so nearly resembles one of the specified diseases as to raise a reasonable suspicion of its character, or a case in which concealment is attempted, ought to be reported as a suspected case, in the same manner as if the diagnosis were certain.

IRVING A. WATSON,
Secretary American Public Health Association.

COUNTY BOARDS OF HEALTH.

BARBOUR.

Dr. J. W. Bosworth,	Philippi.
Dr. S. S. Roderick,	Philippi.
F. S. Byrer, Esq.	

BERKELEY.

Dr. J. W. McSherry,	Martinsburg.
Dr. L. M. Cincindiver,	Darkesville.
Dr. J. W. Harris,	Hedgesville.

BOONE.

Dr. Chas. C. Mason,	Madison.
Dr. S. Hayes,	Peytona.
J. S. Samuels, Esq.,	Court House.

BRAXTON.

Dr. Job McMorrow,	Court House.
Dr. W. P. Newlon,	Court House.
E. S. Bland, Esq ,	Court House.

BROOKE.

Dr. W. K. Curtis,	Wellsburg.
Dr. J. M. Cooper,	Wellsburg.
Dr. Callie Shriver,	Bethany.

CABELL.

Dr. A. B. McGinness,	Guyandotte.
Dr. J. E. Erwin,	Barboursville.
Dr. C. H. Morris,	Milton.

CALHOUN.

Dr. Wm. H. Thomas,	Grantsville.
Dr. B. F. Riddle,	Big Bend.
A. D. Adams, Esq.,	Big Bend.

CLAY.

Dr. C. Carr,	Court House.
G. W. Brown,	Lizzmore.
R. E. Lesure,	Lizemore,

DODDRIDGE.

Dr. L. R. Charter,	West Union.
A. C. Holmes,	West Union.
J. V. Blair,	West Union.

FAYETTE.

Dr. J. D. Myers,	Caperton.
Dr. L. B. Rupert,	Big Clear Creek.
Dr. C. J. Hoover,	Brownstown.

GILMER.

Dr. A. J. Woofter,	Troy.
Dr. Lewis L. Franklin,	Glenville.
Dr. G. R. Fox,	Normantown.

GRANT.

Dr. Olin H. Hoffman,	Petersburg.
E. G. Vossler,	Mount Storm.
Noah May,	Maysville.

GREENBRIER.

Dr. C. N. Austin,	Lewisburg.
Dr. E. F. Raymond,	Frankfort.
Dr. L. Rupert,	Frankfort.

HAMPSHIRE.

Dr. R. W. Dailey,	Romney.
Dr. R. Taylor,	Slanesville
Dr. James McMullen,	Smith's Gap.

HANCOCK.

Dr. P. C. McLane,	New Cnmberland.
Dr. R. S. Donahoo,	Fairview.
Dr. G. L. Beaumont,	Fairview.

HARDY.

Dr. M. D. Williams,	Moorefield.
James Kuykendohl,	Moorefield.
Thomas Bean,	Fabius.

HARRISON.

Dr. Fleming Howell,	Clarksburg.
Dr. J. W. Bowcock,	Clarksburg.
J. J. Davis,	Clarksburg.

JACKSON.

Dr. A. W. Davis,	Murraysville.
Dr. J. H. Wetzel,	Ravenswood.
Dr. W. W. Kidd,	Ripley.

JEFFERSON.

Dr. W. F. Lippett,	Charlestown.
Dr. A. M. Evans,	Middleway.
Dr. S. S. Ranson,	Harper's Ferry.

KANAWHA.

Dr. S. B. Chilton,	St. Albans.
Dr. D. Mayer,	Charleston.
Dr. N. Johnson,	Cabin Creek.

LEWIS.

Dr. Chas. Smith,	Weston.
Dr. Geo. B. Simpson,	Weston.
W. W. Brannon,	Weston.

LINCOLN.

Dr. A. C. Taylor,	Hamlin.
Dr. J. W. Holstein,	Griffithsville.
William Campbell,	Hamlin.

LOGAN.

Dr. James Mitchell,	Court House.
Dr. C. L. Hudgins,	Court House.
H. C. Ragland,	Court House.

MARION.

Dr. R. W. Hall,	Mannington.
Dr I. H. Brownfield,	Fairmont.
James Morrow, Jr.,	Fairmont.

MARSHALL.

Dr. G. W. Bruce,	Moundsville.
Dr H. T. Ford,	Benwood.
Dr. I. C. McCullough,	Cameron.

MASON

Dr. A. L. Knight,	West Columbia.
Dr. J. M. McConnahay,	Leon.
Rankin Wiley, Jr.,	Point Pleasant.

MERCER.

Hon. Isaiah Bee, M. D.,	Princeton.
Dr. O. Jordon Woods,	Princeton.
A. C. Davidson,	Princeton.

MINERAL.

Dr. T. H. West,	Keyser.
Dr. E. H. Parsons,	Piedmont.
Dr. F. M. Wright,	Burlington.

MONONGALIA.

Dr. E. H. Coombs,	Morgantown.
Dr. G. L. Fletcher,	Blacksville.
Vacancy.	

MONROE.

Dr. B. F. Irons,	Pickaway.
Dr. A. H. Butt,	Indian Creek.
Dr. J. B. Spicer,	Alderson.

MORGAN.

Dr. S. Boyd Pendleton,	Berkeley Springs.
Dr. Wm. Beall,	Berkeley Springs.
Dr. W. V. Kirk,	Paw Paw.

M'DOWELL.

Dr. W. R. Jaeger,	Perryville.
John F. Johnson,	Court House.
Wm. A. Dillion,	Court House.

NICHOLAS.

Dr. M. R. Hereford,	Court House.
Dr. R. McCutchin,	Winston.
Dr. A. Rader,	Enon.

OHIO.

Dr. C. F. Ulrick,	Wheeling.
Dr. Eugene Hoge,	Wheeling.
Hon. J. J. Woods,	Wheeling.

PENDLETON.

Dr. Fred Moorman,	Franklin.
Dr. G. A. McClung,	Franklin.
W. H. Boggs,	Franklin.

PLEASANTS.

Dr. J. B. Watson,	St. Mary's.
Dr. L. B. Maxwell,	St. Mary's.
J. L. Knight,	St. Mary's.

POCAHONTAS.

Dr. C. P. Bryan,	Academy.
Dr. C. N. Austin,	Green Bank.
Josiah C. Lowry,	Huntersville.

PRESTON.

Dr. Wm. Frey,	Brandonville.
Dr. S. M. Scott,	Cranberry.
Dr. R. B. L. Trippett,	Kingwood.

PUTNAM.

Dr. Tpomas B. Carpenter,	Poca.
Dr. Will J. O'Neill,	Winfield.
Dr. David Roper,	Buffalo.

RALEIGH.

Dr. W. M. Overton,	Court House.
Joel Lewis,	Court House.
John W. McCreary,	Court House.

RANDOLPH.

Dr. G. W. Yokum,	Beverly.
Dr. J. C. Irons,	Huttonsville.
Dr. J. E. Wamsley,	Huttonsville.

RITCHIE.

Dr. J. B. Crumrine,	Pennsboro.
Dr. W. E. Talbott,	Court House.
Dr. T. C. Martin,	Cairo.

ROANE.

Dr. A. W. Eagell,	Looneyville.
Dr. W. C. Campbell,	Walton.
Dr. J. B. Thompson,	Spencer.

SUMMERS.

Dr. W. G. Coe,	Hinton.
Dr. B. P. Gooch,	Hinton.
Dr. B. P. Shumate,	Hinton.

TAYLOR.

Dr. W. L. Grant,	Grafton.
Dr. A. S. Warden,	Grafton.
Dr. S. A. Harter,	Grafton.

TUCKER.

Dr. Bascom Baker,	St. George.
Sallathiel Callihan,	St. George.
Ezekiel Harper,	St. George.

TYLER.

Dr. J. L. Gillispie,	Sistersville.
Dr. H. A. Rimer,	Middlebourne.
Dr. Eli B. Connaway,	Ripley.

UPSHUR.

Dr J. P. Blair,	Buchannon.
Dr. J. T. Huff,	Centerville.
Hon. T. J. Farnsworth,	Buchannon.

WAYNE.

Dr. C. R. Enslow,	Court House.
Dr. G. R. Burgess,	Court House.
G. F. Ratliff,	Court House.

WEBSTER.

Dr. C. A. Droddy,	Addison.
T. M. Daley,	Court House.
Rob't H. Townsend.	Court House.

WETZEL.

Dr. J. McComas,	New Martinsville.
Dr. G. H. Franks,	Burton.
Dr. J. W. Zeater,	New Dale.

WIRT.

Dr. R. H. Shaw,	Court House.
Dr. J. G. Lowther,	Court House.
Dr. C. Casto,	Court House.

WOOD.

Dr. W. H. Sharp,	Volcano.
Dr L. C. Hunt,	Parkersburg.
Dr. Elias Sloan,	Williamstown.

WYOMING.

Dr. J. H. Brown,	Ocena.
T. F. Bailey,	Baileysville.
Drewry Halsey,	Pineville.

LIST OF PHYSICIANS

REGISTERED DURING

THE YEARS 1885 AND 1886.

Graduates.

John S. Curtis	Hockingport, O.	Cincinnati College Medicine & Surgery, 1878.
F. C. Tice	Wellsburg	Jefferson Medical College, 1879.
W. L Grant	Grafton	Starling Medical College, 1885
A. S Gumm	Shiloh, Taylor Co	College Physicians and Surgeons, 1885.
John M. Pfost	Jackson C. H	College Physicians and Surgeons, 1885.
D A. Lewis	Ohio county	Starling Medical College, 1885.
J. B. Palmer	Kanawha county	Kentucky School of Medicine, 1879.
P. J. Rowan	Grafton	College Physicians and Surgeons, 1885.
H. Yokum	Beverly	Jefferson Medical College, 1885.
F. Elgi	Harper's Ferry	St Louis Medical College, 1877.
W. C. Sherman	Belpre, Ohio	Miami Medical College, 1885
A K. Koss	Slate, Wood county	College Physicians and Surgeons, 1885.
A. S. Warder, Jr	Grafton	University of Maryland, 1885.
J. M Sites	Upper Tract	University Med. College of New York, 1885.
J. W. Johnston	Petersburg	College Physicians and Surgeons, 1885.
J. F. Michael	Tunnelton	College Physicians and Surgeons, 1885.
J. W. Wayman	Proctor	College Phy and Surg. of Michigan, 1883.
S. M Slocum	Wheeling	University City of New York, 1879.
W. H Honner	Wheeling	Jefferson Medical College, 1884,
W C. Ogden	Fairmont	Bellevue Hospital Medical College, 1885.
A. F. Hustead	Wheeling	Jefferson Medical College, 1885.
R. C Reed	Wheeling	Bellevue Hospital Medical College, 1884.
F. J Nolte	Wheeling	University of Georgia, 1885
H. C. Le Blond	Centre	Western Reserve University, 1885.
A. Denly	Kanawha Co.	College Physicians and Surgeons, 1885.
L A. L Day	Martinsburg	Pulte Medical College, 1885.
A. J Evans	Lumberport	Starling Medical College, 1885.
L. H. Forman	Aurora	College Physicians and Surgeons, 1885.
E. S. W. Hall	Buckhannon	University of Maryland, 1885.
J. L. Sammons	Calis	Starling Medical College, 1885
J L. Piler	Upshur Co	Ohio Medical College, 1883.
H. L. Davenport	New Geneva, Pa	Jefferson Medical College, 1875.
W. C Jamesson	Piedmont	University of Maryland, 1885.

C. R. Campbell	Link's Grove	College of Physicians and Surgeons, 1885.
M F. French	Logan C. H	Medical College of Virginia, 1884.
W. A. Slaton	Peytonia	Kentucky School of Medicine, 1885.
D. G. Maupin	Crown City, O.	McDowell College, 1857.
C. W. Wandless	Linside	College of Physicians and Surgeons, 1885.
T. L Daniels	Beverly	Hospital Medical College of Kentucky, 1885.
A. D. Marks	Rowlsburg	College Physicians and Surgeons, 1885.
H. S. Clark	Washington, Pa.	University of Maryland, 1885.
J. B. Lockridge	Edray	University of Maryland, 1885.
D H. Baker	Revesville	College Physicians and Surgeons, 1885.
A. L. Thomas	Crown City, Ohio	University of Nashville, 1882.
G. W. Pinnell	Bull Creek	Cleveland Medical College, 1872
L. Warren	Marietta, Ohio	Columbus Medical College, 1878.
J. C. Banfield	Huntington	Eclectic School Medical College, 1885
J. A. Dixon	Steubenville	Hahnemann Medical College, 1884
A. J. Lemley	Burton	College Physicians and Surgeons, 1885
L. P. Martin	Matamoras, Ohio	College Physicians and Surgeons, Ohio, 1869
W. S Hutchins	Ohio Co.	Western Reserve University, 1886
W. T. W. Dye	Smithville	Starling Medical College, 1886
O. W. Rexroad	Sinnet's Mill.	Starling Medical College, 1886.
J. E. Robins	Stone Cliff	Jefferson Medical College, 1883,
L. N. Burchinal	Mannington	University of Maryland, 1886.
N. M. Hendricks	Morgan County	University of Maryland, 1885.
O. L. Tilton	Monongalia County.	Western Reserve University, 1885.
C. H. Rice	Randolph County	University of Maryland, 1886.
L. B. Rupert	Fayette County.	Louisville Medical College, 1886.
S. A. Stone	Parkersburg	College Physicians and Surgeons, 1886.
A. O. Hull	Wirt County	University of Michigan, 1861.
H. V. McNeer	Union	Bellevue Hospital Medical College, 1886.
G. W. Vandeer	Peabody	Medical College of Ohio, 1886.
J. M. Ford	Caldwell	Virginia Medical College, 1876.
W. O. Wolfe.	Martinsburg	University of Maryland, 1886.
O. F. Richter	Sweet Springs	Virginia Medical College, 1884.
J. J. West	Martinsburg	University of Maryland, 1886.
C. C. Lucas	Duffield's Depot	University of Maryland, 1886.
M. V. Hardy.	Lower Salem	Columbus Medical College, 1880
L. H. York	Fort Gay	Eclectic Medical Institute, 18 2.
J. J. Hoptonstall	Gallipolis	Medical College of Ohio, 1886.
R. H. Pepper	Huntington	Homeopathic Hospital College, 1885.
W. T. Williamson	Cannelton	University of Louisville, 1886.
A. R. Warder	Charleston.	Western Reserve University, 1886.
R Y. Ramsey	Huntington	University of New York, 1871.
L. B. Smith	Crown City	Ohio Western Reserve University, 1886.
W. S. Reese	Pamona	Louisville Medical College, 1886.
C. E. Haworth	Ravenswood	Starling Medical College, 1885.
W. B. Bowen	Moorefield	University of Maryland, 1881.
G. W. Swimley	Bunker Hill	Ohio Medical College, 1876.
J. W. deLabor	Wolf Creek	University of Mrayland, 1886.
T. W. C. Haskins	Benton	Ohio Medical College, 1886.
B. B. Halsey	Parkereburg	University of Maryland, 1885.
P. D. Hannah	Peck's Run	College Physicians and Surgeons, 1886.
C. L. Riley	New Matamoras	Pulte Medical College. 1881.
A. B. Elliott	Bramwell	University of Louisville, 1886.
J. E. Musgrove	Pt. Pleasant	Starling Medical College, 1886.
J. A. Legge	Aurora	Jefferson Medical College, 1858
T. N. Millhken	Spraggs	Jefferson Medical College, 1886
F. A. Hunter	Summers Co	College Phys. and Surgeons, 1886.
H. Koonce	Halltown	College Phys. and Surgeons, 1886.
B. F. Wilson	Pomeroy	University of Pennsylvania, 1885.
H. P. Gerloch	Crown City, Ohio	Ohio Medical College, 1886.
H. H. Jones	Hinton	Med. Department Vanderbilt University, 1880.
A. P. Latham	Hinton	Harvard University, 1883.
Asa Hall	Springfield	University of Pennsylvania, 1854.
D. L. Harlinger	Middleport	Ohio Medical College, 1877,

Practitioners of More than Ten Years.

E B Fleming	Centre Point
I. W. Holbrook	Raleigh C. H.
John Trader	Robinson's Mills.
M H Waldron	Mouth of Pigeon River.
V. B Prince	Warren.
Cecil Comstock	Beach Hill
E. G. Allen	Gallipolis, Ohio.
M. W. Boyd	Hartford.
E. H. Martin	Toll Gate.
W. A. Brown	Dunkard
E. Rutherford	Logan C. H.
D. C. Damson	Forks of Twelve Pole.
G. W. Tooley	Tooley.
G. W. Lawson	Logan County.
J D. Marshall	Centreville.
A. M Anderson	Fairview.
M. S. Hall	Harrisville.
S. W. Newbrough	Ellenboro.
J. E Browning	Madeson.
F. A. Hunter	Summers County.
H. Koonce	Elkins.

Examined.

C. L. Hudgins	Logan C. H.
A. Herrenkohl.	Barboursville.
J. Schevynn	Wheeling.
G. W. Morgan	Monongalia County.
J. H. Thornbury	Yorkville.
J D. Thrasher	Red Sulphur Springs.
M. F Griffin	Jimtown.

SPECIAL PAPERS.

DISINFECTION AND DISINFECTANTS.

In 1884, the American Public Health Association appointed an able committee to investigate the subject of disinfectants and to give the results of their work, in the form of a report. A series of experiments were conducted by the committee to test the value of commercial and other disinfectants. A lengthy report was rendered to the Association above mentioned, at its last meeting in Washinton, December, 1885. The conclusions arrived at by the committee, are presented below:

The most useful agents for the distruction of spore, containing infectious material are:

1. Fire. Complete destruction by burning.
2. Steam under pressure, 110 degrees C. (230 minutes Fah'rn.) for ten minutes.
3. Boiling in water for one hour.
4. Chloride of lime. A four per cent. solution.
5. Mercuric chloride. A solution of 1:500.

For the destruction of infectious material which owes its infecting power to the presence of micro-organisms not containing spores, the committee recommends:

1. Fire. Complete destruction by burning.
2. Boiling in water half an hour.
3. Dry heat. 119 degrees, (230 minutes Fahn.) for two hours.
4. Chloride of lime. One to four per cent. solution.
5. Solution of chlorinated soda, five to twenty per cent.

Solution.

6. Mercuric chloride. A solution of 1:1100 to 1:4000.
7. Sulphur dirxide exposure for twelve hours to an atmosphere containing at least four volumes per cent. of this gas, preferably in presence of moisture.
8. Carbolic acid, two to five per cent. solution.
9. Sulphate of copper, two to five per cent. solution.
10. Chloride of zinc, four to ten per cent. solution.

The committee would make the following recommendation, with reference to the practical application of these agents for disinfecting purposes;

For Excreta.

(*a*). In the sick-room.
For spore containing material:
1. Chloride of lime in solution four per cent.
2. Mercuric chloride in solution 1:500.

In the absence of spores:
3. Carbolic acid in solution five per cent.
4. Sulphate of copper in solution five per cent.
5. Chloride of zinc in solution ten per cent.

(*b*). In privy vaults:
Mercuric chloride in solution 1:500.

(*c*). For the disinfecting and deodorization of the surface of masses of organic material in privy vaults, &c. Chloride of lime in powder.

For Clothing, Bedding, &c.

(*a*). Soiled underclothing, bed linen, &c.
1. Distruction by fire if of little value.
2. Boiling for at least half an hour.
3. Immersion in a solution of murcuric chloride of the strength of 1:2000, for four hours.
4. Immersion in a two per cent. solution of carbolic acid for four hours.

(*b*). Outer garments of wool or silk, and similar articles which would be injured by immersion in boiling water or in a disinfecting solution.
1. Exposure to dry heat at a tempature of 110 degrees C. (230 degrees Fahr.) for two hours.
2. Fumigation with sulpherous acid gas for at least twelve hours, the clothing being freely exposed, and the gas present in the disinfection chamber in the proportion of four volumes per cent.

(*c*). Mattresses and blankets soiled by the discharges of the sick.
1. Destruction by fire.
2. Exposure to superheated steam (25 pounds pressure) for one hour. (Mattresses to have the cover removed, or freely opened).
3. Immersion in boiling water for one hour.
4. Immersion in the blue solution (mercuric chloride and sulphate of copper) two fluid ounces to a gallon water.

Furniture and articles of wood, leather and porcelain.

Washing several times repeated with:
1. Solution of mercuric chloride 1:1000. (The blue solution, four ounces to the gallon of water, may be used).
2. Solution of chloride of lime, one per cent.
3. Solution of carbolic acid, two per cent.

For the Person.

The hands and general surface of the body of attendants of the sick and of convalescents at the time of their discharge from hospital:
1. Solution of chlorinated soda, deluted with nine parts of water, 1:10.

2. Carbolic acid, two per cent. solution.
3. Mercuric chloride, 1 :1000; recommended only for the hands, or for washing away infectious material from a limited area, not as a bath, for the entire surface of the body.

For the Dead.

Envelope the body in a sheet thorougly saturated with :
1. Chloride of lime in solution four per cent.
2. Mercuric chloride in solution 1 :500.
3. Carbolic acid in solution five per cent.

For the Sick Room and Hospital Wards.

(*a*). While occupied wash all surfaces with :
1. Mercuric chloride in solution, 1 :1000. (The blue solution, containing sulphate of copper, may be used.)
2. Chloride of lime in solution, one per cent.
3. Carbolic acid in solution, two per cent.

(*b*). When vacated :

Fumigate with sulphur dioxide for twelve hours, burning three pounds of sulphur for every 1,000 cubic feet of air space in the room; then wash all surfaces with one of the above mentioned disinfecting solutions, and afterwards with soap and hot water; finally throw open doors and windows and ventilate freely.

For Merchandise and the Mails.

The disinfection of merchandise and of the mails will only be required under exceptional circumstances; free aeration will usually be sufficient. If disinfection seems necessary, fumigate with sulphur dioxide as recommended for woolen clothing, &c., as this is the only practicable method of accomplishing it.

Rags.

(*a*) Rags which have been used for wiping away infectious diseases should be at once burned.

(*b*) Rags collected for the paper-makers during the prevalence of an epidemic, should be disinfected before compressed in bales by—
1. Exposure to superheated steam (25 pounds pressure) for ten minutes.
2. Immersion in boiling water for half an hour.

(*c*) Rags in bales can only be disinfected by injecting superheated steam (50 pounds pressure) into the interior of the bale. The apparatus used must insure the penetration of the steam to every portion of the bale.

Ships.

(*a*) Infected ships at sea should be washed in every accessible place, and especially the localities occupied by the sick, with :
1. Solution of mercuric chloride, 1 :1000. (The blue solution heretofore recommended may be used.)

2. Solution of chloride of lime, one per cent.
3. Solution of carbolic acid, two per cent.

The bilge should be disinfected by a strong solution of mercuric chloride, used liberally. (The concentrated solution "blue solution" of this salt with cupric sulphate may be used.)

(*b*) Upon arriving at a quarantine station, an infected ship shond at once be fumigated with sulphurous acid gas, using three pounds of sulphur for every 1,000 cubic feet of air space; the cargo should then be discharged on lighters; a liberal supply of the concentrated solution of mercuric chloride (four ounces to the gallon) should be thrown into the bilge; at the end of twenty-four hours the bilge water should be pumped out and replaced with pure sea water; this should be repeated. A second fumigation after the removal of the cargo is recommended; all accessible surfaces should be washed with one of the disinfecting solutions heretofore recommended, and subsequently with soap and hot water.

Disinfection and Disinfectants.

The object of disinfection is to prevent the extension of infectious diseases by destroying the specific infectious material, which gives rise to them. This is accomplished by the use of disinfectants. There can be no partial disinfection of such material; either its infecting power is destroyed, or it is not. In the latter case there is a failure to disinfect. Nor can there be any disinfection in the absence of infectious material.

It has been proved for several kinds of infectious material that its specific infecting power is due to the presence of being microorganisms, known in a general way as "disease germs," and practical sanitation is now based upon the belief, that the infecting agents in all kinds of disinfectious material, are of this nature. Disinfection, in the destruction of the disease germs the refore consists essentialy. Popularly the term disinfection is used in a much broader sense. Any chemical agent, which destroys or marks bad odors, or which arrests putrefactive decomposition, is spoken of as a disinfectant; and in the absence of any infectious disease, it is common to speak of disinfecting a foul cestpool, or bad smelling stable or privy vault. The popular use of the lime has led to much misapprehension, and the agents, which have been found to arrest bad odors, *deodorizers*, or to arrest putrefactive decomposition, *antiseptics*, have been confidently recommended, and extensively used for the destruction of disease germs in the excreta of patients with cholera, typhoid fever, &c.

The injurious consequences which are likely to result from such misapprehension and misuse of the word disinfectant, will be appreciated when it is known that reeent researches have demonstrated that many of the agents which have been found useful as deodorizers or as antiseptics are entirely without value for the destruction of disease germs. This is true for example, as regards the sulphate of iron, or copperas, a salt which has been extensively used, with an idea, that it is a valuable disinfectant As a matter of fact sulphate of iron in saturated solution, does not destroy the vitality of disease germs, or the infecting power of material containing them. The salt is, nevertheless a very valuable antiseptic, and its low price makes it one of the most available agents for the arrest of putrefactive decomposition in privy vaults &c.

Antiseptic agents, however, exercise a restraining influence upon the development of disease germs, and their use during epidemics, is to be recommended, when masses of organic material in the vicinity of human habitations can not be destroyed or removed, or disinfected. While an antiseptic agent is not necessarily a disinfectant, all disinfectants are antiseptics; for putrefactive decomposition is due to the development of "germs" of the same class as that to which disease germs belong, and the agents which destroy the latter also destroy the bacteria of putrefaction when brought in contact with them in sufficient quantity, or restrain their development when present in smaller amounts. A large number of the proprietary "disinfectants" so-called, which are in the market, are simply deodorizers or antiseptics, of greater or less value, and are entirely untrustworthy for disinfecting purposes.

Antiseptics are to be used at all times when it is impracticable to remove filth from the vicinity of human habitations, but it is a poor substitute for cleanliness.

During the prevalence of epidemic diseases, such as yellow fever, typhoid fever and cholera, it is better to use in cesspools, privy vaults, &c., these antiseptics which are also disinfectants *i. e.* germicides and when the contents of such receptacles are known to be infected, this becomes imperative. Still more important, is the destruction at our seaport quarantine stations of infectious material which has its origin, outside of the boundaries of the United States, and the destruction within our boundaries of infectious material given off from the persons of those attacked with any infectious disease, whether imported or of indigenous origin.

In the sick-room we have disease germs at an advantage, for we know where to find them, as how to kill them. Having this knowledge, not to apply it would be criminal negligence, for our efforts to restrict the extension of infectious diseases, must depend largely upon the proper use of disinfectants in the sick-room.

General Directions.

Disinfection of excreta, &c.—The infectious characters of the dejections of patients suffering from cholera and from typhoid fever is well established and this is true of mild cases, and of the earlier stages of these diseases as well as of severe and fatal cases. It is probable that epidemic dysentery, tuberculosis and perhaps diphtheria, yellow fever, scarlet fever and typhus fever, may also be transmitted by means of the alvine discharges of the sick. It is therefore of the first importance, that these should be disinfected. In cholera, diphtheria, yellow fever and scarlet fever, all vomited material should be looked upon as infections, and in tuberculosis, diphtheria, scarlet fever and infectious pneumonia, the shuta of the sick should be disinfected or destroyed by fire. It seems advisable also to treat the urine of patients sick with an infectious disease, with one of the disinfecting solutions below recommended.

Chloride of lime, or bleaching powder is perhaps entitled to the first place for disinfecting excreta, on account of the rapidity of and its action. The following Standard Solution is recommended.

Standard Solution No. 1.

Dissolve chloride of lime, of the best quality in pure water, in the propotion of four ounces to the gallon.

Use one quart of this solution for the disinfection of each dischage in cholera, tyhoid fever, &c. Mix well and leave in vessel for at least one hour before throwing into privy vault or water-closets. The same directions apply to the disinfection of vomited matters. Infected sputum should be discharged directly into a cup half full of the solution.

Standard Solution No. 2.

Dissolve corrosive sublimate and pumanganate of potash in pure water in the proportion of two drachms of each salt to the gallon. This is to be used for the same purposes and in the same way as standard solution No. 1. It is equally effective, but it is necessary to have it for a longer time in contact with the material to be disinfected—at least four hours. The only advantage which this solution has over the chloride of lime solution consists in the fact that it is odorless, while the chloride of lime in the sick room, is considered by some, objectionable. The cost is a little more. It must be remembered that this solution is highly poisonous. It is proper also to call attention to the fact, that it will injure lead pipes, if passed through them in considerable quantities. It will be best to empty the vessel containing excreta and disinfectant into an earthen jar or wooden vessel, and to leave it 24 hours at the end of which time it may be thrown into a privy vault, or into a hole in the ground excavated for this special purpose

Disinfection of the person—the surface of the body of a sick person or of his attendants, when soiled by infectious discharges should be at once cleansed with a suitable disinfecting agent. For this purpose, solution of chlorinated soda, diluted with nine parts of water or standard solution diluted with three parts of water may be used. A two per cent. solution of carbolic acid is also suitable for this purpose, and under proper supervision the use of a solution of corrosive sublimate 1 :1000 is to be recommended. In diseases like small pox and scarlet fever, in which the infectious agent is given off from the entire surface of the body occasional ablutions with solution of chlorinated soda, diluted with twenty parts of water, will be more suitable than the stronger solution above recommended. In all infectious diseases the body of the dead, should be enveloped in a sheet saturated with Standard Solution No. I, or with a five per cent. solution of carbolic acid, or a 1 :500 solution of corrosive sublimate.

Disinfection of clothing—Boiling for half an hour will destroy the vitality of all known disease germs, and there is no better way of disinfecting clothing or bedding which can be washed, than to put it through the ordinary operations of the laundry. No delay should occur, however, between the time of removing soiled cloth-

Disinfection of the Sick Room.

In the sick room no disinfectant can take the place of free ventilation and cleanliness. It is an axiom in sanitary science that it is impracticable to disinfect an occupied apartment, for the reason that disease germs are not destroyed by the presence in the atmosphere of any known disinfectant in respirable quantity. Bad odors may be neutralized, but this does not constitute disinfection in the sense in which the term is here used. These bad odors are, for the most part, an indication of want of cleanliness, or of proper ventilation; and it is better to turn contaminated air out of the window or up the chimney. That to attempt to purify it by the use of volatile chemical agents, such as carbolic acid, chlorine, &c., which are all more or less offensive to the sick and are useless, so far as disinfection, properly so-called, is concerned. When an apartment which has been occupied by a person sick with an infectious disease, is vacated, it should be disinfected. The object of disinfection in the sick room is mainly for the destruction of infectious material attached to surfaces or deposited as dust upon window ledges, in crevices, &c. If the room has been properly cleansed and ventilated while still occupied by the sick person, and especially if it was stripped of carpets and unnecessary furniture at the outset of his attack, the difficulties of disinfection will be greatly reduced. All surfaces should be thoroughly washed with Standard Solution No. 1, diluted with five parts of water, or with a 1:1000 solution of corrosive sublimate. Standard Solution No. 3, diluted in the proportion of four ounces to the gallon of water, may be used. The walls and ceiling, if plastered, should be brushed over with one of these solutions and subsequently washed over with a lime wash. Especial care must be taken to wash away all dust from window ledges and other places where it may have settled, and to thoroughly cleanse crevices and out-of-the-way places. After this application of the disinfecting solution and an interval of twenty-four hours or longer for free ventilation, the floors and woodwork should be well scrubbed with soap and hot water, and this should be followed by a second more-prolonged exposure to fresh air, admitted through open doors and windows. As an additional precaution, fumigation with sulphurous acid gas is to be recommended, especially for rooms which have been occupied by patients with smallpox, scarlet fever, diphtheria, typhus fever and yellow fever. But fumigation with sulphurous acid gas alone, as commonly practiced, can not be relied upon for disinfection of the sick room and its contents, including bedding, furniture, infected clothing, &c., as is popularly believed. When fumigation is practiced it should precede the general washing heretofore recommended. To insure any results of value it will be necessary to close the apartment to be disinfected as completely as possible, by stopping all apertures through which the gas might escape, and to burn not less than three pounds of sulphur for each thousand cubic feet of air space in the room. To secure complete combustion of the sulphur it should be placed in powder, or in fragments, in a shallow iron pan, which should be set upon a couple of bricks in a tub partly filled with water, to guard against fire.

ing, from the person or bed of the sick, and its immersion in boiling water, or one of the following solutions, and no article should be permitted to leave the infected room, until so treated.

Standard Solution No. 3.

Dissolve four ounces of corrosive sublimate and one pound of sulphide of copper in a gallon of water. Two fluid ounces of this solution to a gallon of water will make a suitable solution for the disinfection of clothing. The articles to be disinfected must be thoroughly soaked in the disinfecting solution, and left in it for at least two hours, after which they may be wrung out and sent to the wash.

N. B. Solutions of corrosive sublimate should not be placed in metal receptacles, for the salt is decomposed and the mercury precipitated by contact with copper, lead or tin. A wooded tub or earthen crock is suitable for such solutions.

When diluted as directed, this solution may be used without danger from poisoning through the medium of clothing immersed in it, or by absortion through the hands in washing. A poisonous dose could scarcely be swallowed by mistake, owing to the metalic taste of the solution, and the considerable quantity which would be required to produce a fatal effect. Clothing may also be disinfected by immersing it four hours in a two per cent. solution of carbolic acid. Clothing or bedding which can not be washed or subjected to the action of stain, may be disinfected by exposure to dry heat in a properly constructed disinfecting chamber for three or four hours. A temperature of 230 degrees fahr. should be maintained during this time, and the clothing must be freely exposed, i. e., not folded or arranged in piles or bundles, for the penetrating power of dry heat is very slight. The temperature above mentioned will not destroy the spores of bacilli, e. g. of the anthrax bacillus, but is effective for the destruction of all disease germs which do not form spores; and there is good reason to believe that this list includes small-pox, cholera, yellow fever and diptheria, eresipelas, puerperal fever and scarlet fever (?). Moist heat is far more effective and it is demonstrated that ten minutes exposure to steam at a temperature of 230 degrees fahr. will destroy all known disease germs, including the most refractory spores. In the absence of a suitable chamber for the use of dry heat, sulphurous acid gas, may be resorted to. The room in which disinfection is practiced should be hermetically closed to prevent the escape of the gas and three pounds of sulphur should be burned in it for every 1,000 cubic feet of air space. Expose the articles to be disinfected as freely as possible by hanging them up in the disinfecting chamber, and leave them for at least twelve hours subjected to the action of the sulphurous acid gas. Soiled mattrasses, pillows, feather beds and articles of this nature can not be effectually disinfected by sulphur fumigation owing to the fact that the gas does not penetrate to their interior in sufficient amount. For articles of this kind and in general for articles of little value, which have been soiled by discharges of the sick, distruction by fire is advisable.

The sulphur should be thoroughly moistened with alcohol before igniting it.

Disinfection of Privy Vaults, Cesspools, &c.

When the excreta (not previously disinfected) of patients with cholera or typhoid fever, have been thrown into a privy vault, this is infected, and disinfection should be resorted to as soon as the fact is discovered or whenever there is reasonable suspicion that such is the case. It will be advisable to take the same precautions with reference to privy vaults into which the excreta of yellow fever patients have been thrown, although we do not definitely know that this is infectious material.

The most trustworthy agent for this purpose is corrosive sublimate. The amount used must be proportioned to the amount of material to be disinfected. Use one pound of corrosive sublimate for every 500 pounds (estimated) of fecal matter contained in the vault. Solution No. 3 diluted with three parts water may be used. The diluted solution should be applied in the proportion of one gallon to every four gallons (estimated) of the contents of the vault. All exposed portions of the vault and the woodwork above it should be thoroughly washed down with the disinfecting solution.

To keep a privy vault disinfected during the progress of an epidemic, sprinkle chloride of lime freely over the surface of its contents daily or if the odor of chlorine is objectionable apply daily four or five gallons of Standard Solution No. 2, which should be made up by the barrel and kept in a convenient location for the purpose.

Recent experiments made by Dr. Sternberg make it apparent that the complete sterilization of large masses of fecal matter in privy vaults would be a difficult and expensive undertaking, if not entirely impracticable. It is therefore of prime importance that infectious material should be destroyed before thrown into a receptacle of this kind. But it seems also important that during the prevalence of an epidemic, the contents of privy vaults should be rendered unsuitable for the development of disease germs by the use of antiseptics. and that so far as practicable, infectious material not previously disinfected, should be destroyed "in situ." A thorough disinfection of exposed surfaces soiled with the discharges of those who have recently frequented the place and of the exposed surface of the material in the vault, is perhaps all that will be accomplished by the use of a solution of bichloride of mercury as recommended, but it is doubtful whether more would be accomplished by the use of any other disinfectant in reasonable quantity, and the superior potency of the bichloride as a germicide and antiseptic, seems to the committee to justify the recommendation made with reference to its use in privy vaults. The liberal use of a good disinfecting powder upon the surface of such masses of organic material, is also to be commended, and for this purpose chloride of lime, diluted with some inert substance on the score of economy and efficiency is perhaps the most useful agent.

SMALLPOX AND VACCINATION.

I have received within the past few days the following notices:

First—The folowing telegram:

"COLUMBUS, OHIO, November 10, 1886.

T. A. Harris, M. D., Secretary State Board of Health of W. Va.:

Death from smallpox at Cleveland on Monday; origin not known.

C. B. PROBST,
Secretary State Board of Health of Ohio."

Second—The following letter:

"PHILADELPHIA, PA., November 11, 1886.

T. A. Harris, M. D., Secretary State Board of Health of W. Va.:

DEAR SIR:—I hereby notify you of the occurrence of a fatal case of smallpox in the Municipal Hospital of the city of Philadelphia. The case was imported from Brooklyn, N. Y.

BENJAMIN LEE,
Secretary State Board of Health of Pennsylvania."

Living along the line of travel in these days of rapid transit, we do not know when we may be called on to meet this danger. To be forwarned is to be forearmed. I wish, therefore, now when there is no danger, to urge our people to make provision for the danger whenever we may be exposed to it, whether in our travels or at home. The question is sometimes asked:

Does Vaccination Protect?

The fact that vaccination does protect is not as clear to the mind or the public as it should be. The most popular mistake is that vaccination does not prevent one from having the smallpox, but only makes the disease milder if one does have it. The truth is that, when successfuly done, and not too long ago, the protection is almost absolutely perfect; certainly the protection is as great as the having had the true smallpox itself.

Almost a hundred years ago Jenner discovered that when a person is inoculated with cow-pox the attack of this lighter disease. gives immunity from the much more dangerous disease—smallpox. The announcement of his discovery was met with incredulity. Jenner had vaccinated a boy eight years old, who had never had smallpox. He said to the incredulous medical men of his day: "If you think the boy is not protected from smallpox, give him the smallpox if you can." They did not shut him up with smallpox patients, but they used a surer method. They inoculated the boy with the smallpox virus It did not take. They tried it again with the same result, and reported it many times with the same result. After twenty failures they had to acknowledge that the boy was protected. In Brussels, out of more than 10,000 children vaccinated in 1869-70, not one case was reported as having been attacked in the terrible epidemic of smallpox which swept over Europe soon after. Appeals for information as to cases of smallpox after vaccination with animal virus, with large rewards offered for such information, have been without avail.

Dr. Lewis says that in the severe epidemics of smallpox which swept over Hayti in 1881–2, although attending two or three hundred cases every day, neither he nor any of his family or servants, numbering thirteen in all, took the disease, their only protection being successful vaccination. The scholars and teachers of three schools (five hundred in all) were successfully vaccinated and only one case occurred. Dr. Lewis states that not a single death occurred among vaccinated persons.

Dr. Dunn, of Minnosota, contrasts the histories of two families, one vaccinated and the other not: "The families are of the same size, living a few miles apart. The ages are nearly the same. On account of carelessness or parsimony neither family had been vaccinated. The smallpox enters one, still they take no precautionary measures. The disease has the same scope it had before the discovery of vaccination, and it quickly shows itself to be the same old pest that it was before the immortal Jenner robbed it of its terrors. Of the nine unprotected persons it rapidly destroys three, ruins an eye for another, and scars the other five, four of them girls, in a frightful way." The other family hear that they have been exposed to smallpox, not aware that the disease has already been for ten days operating in the system of one of its members. They are vaccinated with reliable bovine virus. Two days later one of the ten comes down with smallpox, which runs a mild course. They are daily and nightly exposed to the disease, their vaccinations work well and not one of them is attacked.

Dr. Henry Tomkins, Medical Superintendent of the fever hospital belonging to the Manchester Royal Infirmary at Monsale, in a paper read at Owens College, said: "The most striking of all evidence is that derived from smallpox hospitals themselves. Here the protective influence of vaccination is seen and proved in a manner beyond all cavil. At Highgate, during an experience of forty years, no nurse or servant having been vaccinated has ever contracted the disease, and evidence of the same character I can myself bring forward; for during the whole time I had charge of the fever hospital, more than a thousand cases of smallpox have passed under my care, yet no servant, nurse, porter or other person engaged there has, after vaccination, ever taken it, though exposed daily to infection in its most concentrated form. Again, among all the students who, during the past two years have attended the hospital for clinical instruction, not one has suffered, all having been vaccinated before being permitted to enter the smallpox wards."

Dr. O. W. Wight, of Detroit, says: "During the winter of 1881–2, when smallpox was epidemic, I allowed fourteen well persons to go to the pest-house, in the city of Detroit, who wished to take charge of other members of their families removed there on account of the disease; all of them were vaccinated at the time of their going. Not one of them had even a slight attack of varioloid."

"Facts and cases by the hundred, throwing the weight of their testimony all in the same direction, could be culled from sanitary and medical literature, but these few probably sufficiently show that vaccination protects a person from catching smallpox. If the vaccination is imperfect or done many years ago, it may still be worth much in mitigating the disease and converting it into varioloid."—Maine State Board of Health.

Dr. W. H. Sharp says: "In the Carder family, near Volcano, the older brother, unvaccinated, contracted smallpox while on his way to be married at Cairo. His bride, vaccinated, exposed at same time, escaped. Mr. Carder died. Three brothers, unprotected, contracted the disease and died. The mother, unprotected, contracted it and had a narrow escape from death. The father and one brother, vaccinated some years before, had mild attacks of varioloid, the latter very mild, being more recently vaccinated of the two. The bride above mentioned nursed all these cases and remained well.

The report of the State Board of Health for New York (April, 1885) says: "The objections and occasional resistance to vaccination which are met with among immigrant passengers indicate a considerable skepticism among European communities, more particularly among English people, as to the protection afforded by it, or else a fear that constitutional disease will be introduced by that means. The groundless character of the fear that disease will be communicated by vaccination, when proper care is used in the selection of the vaccine virus, has been too often demonstrated to require any argument in this place. The result of the teachings and influence of the anti-vaccinationists is well illustrated by the fact that in the hospitals for the city of New York not a single case of smallpox exists at this time, while in the city of London the reports have shown for months past an average of upwards of 1,100 cases in hospital. In New York City, when a 'from house to house' inspection and search among the tenement population for the unvaccinated is practiced every year, smallpox is not met with, except as it was imported and developed by persons from other localities; in London the weekly average of new cases, as indicated by bills of health and the number in hospital, has been from four to five hundred. The number of cases of smallpox on vessels that entered this port in 1883 and 1884 was twenty-five."

The statistical returns show that in Germany, where vaccination is compulsory, the mortality from smallpox in the past two years has been reduced to 1.44 per 100,000 persons, whilst in the rest of Europe, where vaccination is not compulsory, the mortality from smallpox has been 101 per 100,000 persons.

CONTAGIOUS DISEASES.

It has long been known that some diseases are contagious—catching, in popular parlance. It is not necessary at this time and place to discuss the strict limitation of the terms contagious and infectious. The exact method of the contagion, or communication of the disease from one individual to another was not known, but it had been noticed that often exposure to the disease, there was a certain period of time in which the system showed no ill effects. The disease made its presence manifest by no indications of disturbance of the general health, but after a time, varying with the disease, its presence began to be shown by certain symptoms of constitutional disturbance, until it made itself known by all its characteristic symptoms. Following the exposure there had been a period of incubation—of hatching—by which the small particle of infection had developed within the system enough to infect the entire system; a little leaven had leavened the whole mass. All this had been long known to even common observers, but it remained to the scientific observers of the nineteenth century to offer a plausible explanation of this process, which is done by what is called the germ theory. It is a well-established fact that every seed bringeth forth after its own kind, whether it be in the animal or in the vegetable kingdom. Careful examination and microscopic examination showed that in the blood of individuals suffering with certain diseases there were minute bodies not found in the blood of healthy individuals. Careful cultivation of these bodies in suitable media demonstrated the fact that they were capable of self-multiplication and reproduction; these particles were assumed to be the germs—the seed of disease—and inoculation with these germs, in the case of certain diseases in animals, have demonstrated the truth of this assertion. Now, whilst it has not as yet been demonstrated so as to be beyond question, it is claimed for the germ theory that all diseases, certainly all so-called contagious diseases, arise from and are propagated by their own specific germ, or seed, of a septic character. And in the correct sense of the word, an antiseptic is an agent possessing the power and the property of destroying such septic germs. Whether they are to be used before or after the introduction of such septic germs into the body, the term antiseptic is to be strictly confined to such agents as destroy septic germs, and not to such as merely hide or disguise the presence of the septic germ by substituting some chang eithe n appearance or in the smell of the septic material. The American Public Health Association appointed a committee to investigate the subject and to recommend such agents as they might find to be capable and efficient as disinfectants. This report on the subject is most valuable, not only in offering a list of reliable disinfectants, but in showing the worthlessness, and the danger in the using many articles falsely claiming to be disinfectants, and in which the public has had much confidence and has placed reliance.

Smallpox.

At the head of the list of infectious diseases smallpox may well be placed. There is no disease whose presence in a community is calculated to produce more wide spread alarm and panic, yet by a simple measure of precaution it may be prevented to the individual, and stamped out by the community. It needs no argument at this place to prove the all sufficiency of vaccination. A case of smallpox never arises save from some preceding one. Were all efficiently vaccinated there could be no smallpox. The best protection in case of the occurrence of a case of smallpox in any community is to at once, and in a thorough manner, vaccinate all persons liable to be directly or indirectly exposed to it; to destroy, after use by the person so diseased, all articles that may have been used, or that may have been about the diseased party; or to thoroughly disinfect them with some of the agents recommended in the report from the American Public Health Committee above referred to. With proper care it will not take long to stamp it out; and as to the comparative cheapness of an early attention to it, I will only refer to the cost of the epidemic in Montreal in 1885, and the epidemic in Philadelphia in 1870-1. Whilst smallpox is claimed to be the most contagious of known diseases, it is also the most easily and the most certainly prevented of all diseases.

Scarlet Fever.

Second only to smallpox scarlet fever takes rank for the persistent character of its contagion. Unfortunately here we have no such means as vaccination to protect us against it. Given a case of scarlet fever the best thing to do is a rigid exclusion of the diseased party from all who are not protected by the having had the disease, and too much reliance should not be placed upon this fact. The persistent way in which the contagious germ of scarlet fever will adhere to all articles which may have been in any way exposed is well known. The room occupied, the bed and body clothes, the books, the toys and play-things of the patient—the persistent way in which it may make its presence known after long periods of time, and after what was considered careful disinfection should impel us to make the most rigid use of protective means of disinfection. It may not be amiss just here to suggest the possibility of contracting through an animal source for it has been claimed that it has been communicated by milk obtained from parties when the disease prevailed in their families and even from the milk of cows suffering from a certain disease of their udders.

Measles.

Measles, though regarded usually as not a very serious disease is really by reason of its sequelæ the cause of many deaths. In it as in scarlet fever the most rigid attention should be paid to the isolation of the infected party and the practice of a rigid disinfection of all possible sources of the disease. And it should be borne in mind that an attack of measles does not carry with it protection from its cousin Roathlyn or German measles, nor does Roathlen protect from measles.

Diphtheria.

This also is a highly contagious disease and demands the practice of as rigid a system of disinfection as scarlet fever, for whilst it is not always of a virulent type it at times startles by a mortality not second even to malignant scarlet fever, and will prove itself just as easily communicated. It is too much the fashion to call all cases of ulcerative sore throat dyphtheria, and thus magnify the skill in their treatment at the same time that the popular mind is thrown off its guard when the veritable dyphtheria makes its appearance. It should not be forgotten that it is a highly contagious disease and very fatal in its nature, and that in all cases of true dyphtheria every precaution in the way of disinfection should be used, and the sick rigidly isolated from the well.

Typhoid Fever.

This too is a contagious disease but the contagion is rarely conveyed through the medium of the air; it is usually contracted by the taking into the system of the germ either in what is eaten or drank for the poisonous germ is discharged either in the evacuation of the bowels or of the bladder, hence a rigid system of disinfection of such discharges should be practiced in the first place if possible, to destroy this infectious character and deposite them whereby no possibility they can reach either the water to be drank or the food to be eaten. It should never be forgotten in this, as in other diseases, that cleanliness—perfect cleanliness is an especial element of disinfection.

Consumption.

Whilst it has not as yet been fully established that consumption should be classed among contagious diseases there are many reasons why a rigid system of disinfection and cleanliness should be pursued. It is stated that one-tenth of the mortality among adults of the country is from this cause. A large proportion of the deaths reported as from consumption I am persuaded are not due to tubuculosis for it is only too common a practice to class under this head all deaths from wasting diseases, especially if there be any cough or expectoration, no special account being taken of the chronic diseases of the lungs other than tubuculosis—whether these diseases be of a catarrhal character or otherwise. I think the influence of heredity has been over-rated in the production of consumption, and that a more careful attention to external surrounding influences would do much in lessening the prevalence of the disease. The best means of protcetion against it whether in those with inherited tendency or otherwise, will be found in pure dry air—pure clean water, good nutritious and well cooked food and much out of door exercise. Assuming the infectious character of the disease all the discharges from the lungs should be thoroughly disinfected and the well should not be exposed to the breathing air possibly infected by the sick.

VITAL STATISTICS.

An accurate and complete registration of every birth and death and marriage is an absolute essential to any real progress in the science of public hygiene or its effective and intelligent administration, either in the narrower limits of a given municipality or within the more extended boundaries of a State or nation. By such registration we are supplied with a current history of disease, which is equally indispensible, not merely as a means of comparison, by which the past becomes more instructive, but as indicating at short intervals of time the exact state of the public health, and the recognized causes acting deleteriously upon it. In addition to the great value these reports possess at the time of their publication the fact must not be overlooked that they are to become in their turn material of history and standards of comparison indispensable in all inquiries into the sanitary state of any class or group of persons of any town or district, of men and women following any given occupation; and through sound principles of induction we may be enabled to transmute the separate facts of such carefully kept registers into scientific truths, and thus become possessed of those general principles, which we hold in reserve to be applied at a moment's notice to such special cases as may present themselves. We may observe that the class of sciences to which the science of hygiene belongs is obviously the same class as medicine itself. Both are preeminently sciences of observation, with much in common and many points of contact; both make disease their study, but in different ways. With the physician the question is, what will cure an ague or mitigate a fever? With the health officer, what will prevent them? If the physican takes cognizance of prevention it is only to advise the patient and his household what precautions they should adopt; but the care of the health officer extends to the whole district or community threatened by disease. The physician may advise the consumptive patient to abandon some unhealthy occupation, damp dwelling or undrained district; the officer of health would render the occupation healthy or drain the district dry. In a word, while cure or palliation is the aim of medicine, prevention is the object of hygiene; while the one studies the good of the unit, the other looks to the welfare of the mass. Therefore, since hygiene deals with mankind, not one by one, but in communities, it follows that its scientific method can be no other than the numerical method which in its application we call vital statistics.

The health of its subjects and the duration of their lives is to every government a matter of the highest consideration. And to be indifferent to, or ignorant of the laws which may effect human existence, would be to make the legislator responsible for the ravages of every preventable epidemic invasion of disease. But how shall the legislator or government of our State be able to act intelligently or effectually in relation to public health? In no other way we emphasize, is it possible than by an adequate knowledge of our vital statistics, to be derived alone through uniform and careful registration, by which not only are the causes of disease and death ascertained, but the proportion of death rate to the population, and to the occupation of those who died—knowledge of no secondary importance. By no other means than by carrying out a well matured plan of registry can we fully know—that which concerns us so much to know—what parts of our State are best adapted to health or most liable to disease, or the parts best calculated to ameliorate certain classes of disease. It is this data that we need.

For it is data of this description which tells us in a most indisputable manner where we may locate to live, and again where we may locate to die. The value and the necessity of this knowledge is easily illustrated. We learn, for instance, from English registration that "while a child has a chance of living forty-five years in Surrey, it has a chance of living only twenty-five in Liverpool;" and in a registration report of Massachusetts ,we find that "in the county of Suffolk the average of life is twenty years, while in the county of Hampshire it is forty years, so also in Duke county-forty years," fractions being ommitted. Do not facts like these—facts officially given, and ascertained only by registration—conclusively show the necessity and the importance of having a system of registry? A Nation or State without its statistics is as embarrassed as is a great mercantile or commercial interest without its data. These must be analyzed, arranged and reasoned upon so as to enable the State to regulate its plans of development to the greatest advantage. So vital is this interest that at not infrequent intervals since 1853 the great powers have combined in statistical congresses, and their deliberations have commanded the attention of all governments.

"Statistics," it has been well said. "are no longer viewed as a mere theoretical science for the gratification of the curiosity of the learned, since they subserve the practical ends of political society, and lend service to administration as well in determining the value of existing institutions and laws, as in weighing measures not yet carried out." In this department of statesmanship vital statistics have always commanded large attention, and never more than in those latter studies which have shown so important relations to public health. The department of life insurance is an illustration of how much such studies have to do with the development of important interests. Dr. Farr, the English statist, speaks of it as one of the highest branches of mercantile interest, and one of the most valuable discoveries of modern times. Yet it is directly dependent upon the accurate calculations of the probabilities and expectations of life, which have been their origin and development through vital statistics. Some of the embarrassments which have limited its great capacities for the promotion of social and national welfare within our country, have arisen from defects in statistical observation and classification, and from too great reliance in English tables, without adequate facts as to our own climate, temperament and social conditions.

The value and importance of vital statistics, even upon a cursory examination is so apparent, that it is unnecessary to discuss it further. In brief, then, the advantages of a proper registration of vital statistics, may be summed up as follows:

First.—Ascertaining the sickness and mortality, with reference to the causes, and the comparative prevalence in localties, and the death rate.

Second.—As determining the condition of the people in their social relations, and the influences which control the gradations in society, their habits and practices, and their social tendency.

Third.—As affording a reliable record of certain events which are often essential to be proven in establishing the rights to, or the just distribution of property, and also as aiding by its inquisitive requirements in the detection of crime.

In a majority of States composing the American Union, we find laws providing for the registration of births, deaths and marriages. In all those States in which this system is of oldest date, does it have the strongest hold upon popular affection. It is in these States that liberal appropriations are cheerfully made for the purpose of perfecting these records.—*Tennessee Health Bulletin,* October 31, 1886.

SANATATION.

Many of our American States and cities are now beginning to reap the results of sanitary work which many times repays for all public expenditure on its account; but to gain the best idea of its possibilities and worth we must look to that people whose government earlier than any other, recognizes the claims of public health on her legislation. As we are indebted to the mother country for the rich heritage of political and legal precedents, so to England we had to look for guides and models in our health work. Two events, perhaps more than any others were instrumental in awakening the English people and the English government to the value of Sanitation as an element of national prosperity. One of these was the recurring sweep of cholera over the civilized world. In 1832, in its western march it had visited England and again in 1848, with a still severer mortality. A third time in 1854, it had left its home in Asia and was rapidly extending over Europe. At the same time, during the dark days of waiting before Sebastapol, often preventable diseases, not Russian missiles, had destroyed one English army, the sanitary knowledge, and the inspiration of a noble woman called into existence a system of military hygiene which saved a second army, and showed a sickness rate, and a death rate lower than would be found amongst the men if they had been in their English homes. The opportunity which the earlier visitations of the cholera to Europe gave to sanitarians to study the disease in their own country was improved, and the intervals which passed between the several epidemics was diligently improved in investigating the history of its progress from place to place, and the circumstances and conditions which favored its spread. The intimate and indispensable relation which exists between domestic filth and its various forms and cholera was plainly shown and this imported pestilence took its place in the catalogue of preventable diseases.

The lesson which was taught by Florence Nightingale in the Crimea, and by Mr. Chadwick and his associates at home, were not lost to the English nation, and Parliament by its enactments in 1855, and in succeeding years has built up in England a more nearly perfect system of State medicine than can be found else-where. Though England's course in this direction was accompanied by all the disadvantages, and uncertainties which are incidental to all pioneer movements, the results have been so satisfactory that a judicious sanitary administration in local and national affairs is now recognized as a part of governmental duty, hardly if any, less imperative than even an assurance of continued supremacy of the British marine. When Lord Beaconsfield said, as prime minister of England that "the health of the people is the first duty of the statesman" he expressed only that which has become the sentiment of the nation; for "the intelligent interest in the matter among the people at large" which Lord Derby predicated as indispensable to a successful administration of the public health Acts, can be found in no country to such degree as is there seen. The testimony which their vital statistics give is convincing. The argument which the lessening death rates make is unanswerable. Measures for improving the public health, consisting mostly in the introduction of sewerage, draining, and a pure water supply, and in the removal of filth, were begun in many of the unhealthy old towns some thirty or more years ago. Salisbury, one of these old towns, had borne an unenviable reputation for unhealthiness. The plague had ravaged it repeatedly, and once had destroyed one fourth of its inhabitants; cholera in 1849 entailed a heavy mortality.

In 1853 improvements were begun. For nine years before the improvements the death rate had been twenty-seven to the 1,000; for nine years after twenty-one to the 1,000. Similarly the death rate was reduced in Cardiff from thirty-three to twenty; in Croydon from twenty-three to eighteen. In Macclesfield from twenty-nine to twenty-three, and in Newport from thirty-one to twenty-one in the 1,000. The saving of life in these towns was respectively 20, 32, 22, 20 and 32 per cent. At the same time with the improvement in the general death rate there was a striking diminution in the deaths from particular diseases; thus, in these towns named, there was effected a reduction of the mortality from typhoid fever of thirty-six per cent., in the lowest to seventy-five per cent., in the highest instance, and from consumption a diminution of from seventeen to forty-nine per cent. These results were the outcome of the earlier efforts in England, but in 1872 and 1875 the Public Health Acts of those years inaugurated important changes. Increased powers were conferred upon the local sanitary authorities, a more intimate sanitary supervision was established, and provisions were made for the appointment of local officers of health in both town and city districts. The good efforts of this further legislation has gradually made itself apparent. We are told, in the report of the Registrar General for 1883 that the death rate in England and Wales for the five years 1876-80 was lower than usual, but that for the first three years of the present decade 1881–2–3 it had been lower than had ever been recorded before.

But, perhaps, in no part of the kingdom have the results been more satisfactory than in the metropolis itself, for the reason that they have been won under the great disadvantges of an ever rapidly increasing bulk and density of population. From 1841 to the present time, the number of inhabitants has increased from 1,948,-

416 to over 4,000,000, and the average density from twenty-five to the acre to fifty to the acre. In the face of such adverse conditions the maintenance of a stationary death-rate would have been, as pointed out by Mr. Chadwick, a sanitary triumph; yet the showing is better than this. In 1848–9 the death-rate of London averaged 25.3, and for the last few years it has been about twenty to the 1,000. Abstractly considered, this difference in death-rates is not so significant, as a very simple calculation can make it. As applied to the population of London, the saving of five lives in the 1,000 means the saving of 20,000 lives yearly; and the saving of three lives to the 1,000 of the general population of England and Wales, which has been effected, means the saving of over 100,000 lives annually. This modern movement to improve the public health has not been confined to England, but extended to Scotland; it has lowered the death-rate in Glasgow from thirty to twenty-four in the 1,000, and diminished remarkably the amount of discomfort, pauperism and crime; to India, where it has reduced the death-rate in the last decade by two-thirds; to the English army, where it has brought the death-rate from eighteen to eight in the 1,000; in the navy, where the death-rate is only five to the 1,000, in contrast with the death-rate of eighteen which still exists in the merchant marine. It has furthermore encouraged and stimulated all the peoples of the earth to study and to put into practical use that most profitable of all systems of political economy—Public Hygeine.

Among our own States Massachusetts was the first, sixteen years ago, to establish a State Board of Health, and since then in pretty rapid succession, one State after another has taken its place until now there are but few that have not through a State Board of Health, made provisions for a public health service. * * * * A careful examination of the communications from physicians in this report will suggest that even in our own State, where the evils of crowding are not felt as they are in many places, and when the general death rate is presumably lower than it is in many of the other States, there are many causes which lead to higher sickness rate and death rate than ought to prevail. But if we should arrange the various causes under the few headings of polluted water, impure air, dampness or defilement of the soil beneath and about our dwellings, and criminal carelessness in the management of contagious and infectious diseases, we should include all the more potent causes of preventable sickness in all countries.

A glance at this brief enumeration shows that telluria, climatic and other conditions, not subservient to the will of man, has but little to do here. The water supply of our State, where uncontaminated by human agency, of the purest and best, yet ignorance and carelessness makes the drinking water, even in the uncrowded farming districts, a fruitful source of disease. The air which moves over our hills and valleys is as pure as can be found, yet in our houses, and schools, and churches, it is a hetrogeneous mixture, whose derivation and vileness, if appreciated, would not commend it to the fastidious.

From our soil malarial exhalations and malarial diseases do not arise, yet serious but avoidable causes of disease very often spring from the ground which our habitations rest upon. With the world at large we suffer from the contributions which we are annually called on to make to that most cruel of all Minotaurs—the group of dymatic diseases. We have sent this tribute year after year with the spirit of resignation befitting a people of less general intelligence and with fewer newspapers. By putting into practice some of the simplest and most easy of sanitary precepts in India the death rate from cholera has been reduced to a small part of its former prevalence. Yet the apathy or fatalism of many a New England village at times lets our less malignant diseases spread without restriction and present a death rate which Bombay would call excessive.

Some careful nurses, with long experience with scarlet fever, have never permitted the disease to spread from the first cases, and yet, in our communities, a case of scarlet fever which is not communicated to other children, if other susceptable ones are in the neighborhood, is the exception and not the rule. Many careful physicians give testimony to the efficacy of preventive measures in dyphtheria. They teach that this disease may be greatly restricted if not stamped out entirely. But still in our State, at dyphtheria funerals in country places, parents, with children at home, if not with them, attend; and in villages and cities, the public hack with no subsequent disinfection, carries the mourners. And this, and many other sanitary delinqencies, will continue, and will be followed by their inevitable results, and some thousands of unnecessary deaths will annually occur until the public comprehension grasps the idea that the heaviest of all taxation is that which preventable disease imposes. Then the public conscience will move the public will to say, as did Canute of old to the ocean, but with far more effect, "Thus far shalt thou come and no further."—*Maine Report.*

CONTAGIOUS PLEURO-PNEUMONIA.

The accounts from Chicago and the statements of Dr. Salmon, the Government Veterinarian, leave no room to doubt the existence of this disease among the cattle at Chicago. We should not be surprised to find realized in this way the worst fears of the veterinarian and cattle breeders. For a number of years it has been known that the disease prevailed more or less extensively in New York, New Jersey and Pennsylvania. The State and General governments have been repeatedly warned of the danger ot allowing the plague to exist, and half-way measures have been taken to eradicate it. Not a month has passed without the intelligence of outbreaks, which plainly showed that the disease still lingered in our midst. Now the country is face to face with the most serious problem in animal pathology it has had to encounter. The existence of the disease in Chicago, the great cattle distributing centre, threatens all the cattle of the country, and only extraordinary precautions can prevent its extension.

The matter is one of great public interest as involving one of the great industries of the country, and should be dealt with by the General Government. The spread of the disease to the Western herds means the loss directly or indirectly of many millions of dollars, and a damage to the cattle trade which it would take years to recover.

To an American nothing is more remarkable in Europe than the extreme anxiety displayed by the Governments in the investigating of every case of disease in cattle, the stringent quarantine of suspected localities, and the enforcement of sanitary regulations which we here think scarcely needful in our civil or municipal affairs. But they have bought their experience dearly enough, and it is the burnt child who dreads the fire.

Our country has been remarkably free from devastating cattle plagues, and it is difficult to get people to realize the full danger until the mischief is irremediable. Those best acquainted with the condition of things have repeated their warning, but too often, to deaf ears, and it really looks as if some great calamity, such as the cattle plague which overtook Great Britain in 1865 were needed to arouse public opinion to the point at which the question should be dealt with as its importance demands. In the present crisis the indications are plain. The districts in which pleuro-pneumonia exists should be declared infected; a thorough examination should be made of all suspected animals; the immediate slaughtering and burning ordered of cattle found to be diseased; the isolation of cattle which have been in contact with diseased cattle; and the systematic supervision of infected regions until such time as all danger of further trouble is over. To accomplish this the inspectors must be armed with arbitrary powers, and the Government must be prepared to spend large sums of money, but every thousand dollars now spent will mean one hundred thousand saved if pleuro-pneumonia can be kept out of the western herds. There should be no trifling, and the action to be effective must be immediatee

Only a few weeks ago pleuro-pneumonia broke out among the cattle at quarantine at Quebec, where all animals coming from Europe are isolated for three months, on purpose to prevent the importation of this disease, the incubation of which may extend to ten or twelve weeks. Rather than risk the introduction of the disease the Dominion authorities ordered the entire lot to be killed and burnt at a loss of over three hundred thousand dollars. Just such stringent measures are now called for at Chicago. Nothing less than the destruction of the affected animals will give a reasonable prospect of checking now, and ultimately eradicating the disease.

[Medical News, October 2, 1886.]

Pleuro-pneumonia is an infectious disease of the lungs, and of the lining membrane of the cavities of the chest, peculiar to bovine animals. It is usually slow and insiduous in its attack. It is not communicated to man. It came from Europe and first appeared in this country in New York in 1843. It has been expelled from only two states in which it has prevailed—namely Massachusetts and Connecticut. It was only expelled by the slaughter of every animal sick of the plague or which had been exposed to its contagion. Cattle may seem to recover, but rarely so entirely as not to be a constant danger to healthy animals associating with them. Medicine does not cure, in the sense of recovery from the disease and from all liability to infect other animals. It was taken to Australia by one cow—to New York by one cow, and probably to Chicago by one cow. It may be recognized by the peculiar dry cough and the very high fever of the first stage of the disease, when the local symptoms in the chest or lungs are not very well made out; these followed by the marked chest symptoms are reported to be very characteristic. Cutting into an affected lung after the death of the animal the diseased portion is solid, like a sponge full of viscid fluid. The suface is streaked with a wonderful mixture of all colors from crimson to brown. The only remedy is to isolate the suspected, to kill those known to be infected.

TOXICOLOGY—TYROTOXICON CHEESE POISON.

Prof. George H. Rohe of Baltimore in the Philadelphia Medical Times of September 18, 1886, says. A little over a year ago Prof. V. C. Vaughn of the University of Michigan, discovered a poisonous ptomaine in cheese which had produced alarming symptoms in persons who had eaten of it. This poisonous principle, isolated by a complicated chemical process was found to produce similar symptoms to those produced by the poisonous cheese itself. The most prominent of these symptoms were dryness and constriction of the fauces, nausea and retching, vomiting and purging, and in some cases grave nervous depression. The vomited matter was frothy and the stools were watery in character.

During the winter and spring, Dr. Vaughn in continuing his researches succeeded in isolating a similar poisonous ptomaine from pure milk which had been kept in clean glass stoppered bottles for three months or more. On the 9th of last June, eighteen persons were poisoned by eating vanilla ice cream at a pic-nic in Michigan. Some of the cream, together with a sample of the flavoring extract was sent to Dr. Vaughan for analysis. After proving the innocuousness of the flavoring extract upon himself and his assistant (the latter took two teaspoonsful of the extract without producing any effect), the cream was tested for poison, and the same ptomaine found which had been previously isolated from poisonous cheese and the milk above mentioned. Experiments upon animals (cats) produced the same symptoms as the ptomaine from poisonous cheese. Dr. Vaughan has therefore concluded that the poisonous principles found in the cheese, milk and ice cream, are identical.

He has named this ptomaine Tyrotoxicon—(cheese-poison). *Post-mortem* examination of the poisoned animals showed entire absence of any traces of inflammation of the intestinal canal.

The physician Dr. R C. Moffit who attended most of the people poisoned by the cream, and who was himself one of the unfortunate sufferers describes the symptoms as follows: "About two hours after eating the cream every one was taken with severe vomiting, and after from one to six hours later with purging. The vomit was of a soapy character and the stools watery and frothy. There was some griping of the stomach and abdomen with occipital headache, excrutiating backache, and "bone" pains all over especially marked in the extremities. The vomiting lasted from two to three hours, then gradually subsided, and everybody felt stretchy and yawned in spite of all resistance. The throats of all were œdimatous, one or two were stupefied; the others were cold, and experienced some muscular spasms; a numb feeling, with dizziness and momentary loss of consciousness was complained of by some. Temperature was normal and pulse from 90 to 120; tongue dry and chopped. All were thirsty after the vomiting subsided, and called for cold water, which was allowed in small quantities with no bad results. * * * All were affected with an irresistable desire to sleep which can scarcely be overcome." Dr. Vaughan is of the opinion that the production of the ptomaine is due directly or indirectly to the growth of some micro-organism. The fact that the ptomaine was only found where there were evidences of the presence of butyric acid seems to point to some connection between the poison and butyric fermentation. Dr. Vaughan varied his experiments by adding small portions of the poisonous cream to fresh custard, and produced identically the same symptoms upon himself, as those so graphically described by Dr. Moffit, after taking only one tablespoonful. The effects upon the throat and mouth resembled those fram a toxic dose of atropine. While there was nothing peculiar in the taste of the custard when swallowed, the matter vomited had a sickening odor and taste, recognized by Dr. Vaughan as that of the isolated person. This would intensify the nausea.

Dr. Vaughan draws pointed attention to the similarity between the symptoms of tyrotoxican poisoning and cholera infamtum, He says "the disease occurs at a time when decomposition of milk takes place most readily; it occurs at places where absolutely fresh milk can not be obtained; it is most prevalent among classes of people whose surroundings are most favorable to fermentative changes; it is most certainly fatal at an age when there is the greatest dependence upon milk as a food, and when an account of the rapid development of the intestinal follicles, there is the greatest susceptibility to the action of an irritant poison. * * * A little dried milk formed along the seam of a tin pail, a rubber nipple, tube or nursing bottle not thoroughly cleansed, may be the means of generating in a large quantity of milk enough of the poison to render it highly harmful to children * * * If this casual relation does exist between tyrotaxicon and cholera infantum a knowledge of it will aid us not only in the preventive but in the curative treatment of the disease. The first thing to do in the treatment of the disease is to absolutely prohibit the further administration of milk either good or bad because the fermentation going on in the intestine would simply be fed by giving more milk, even if the milk be of unexceptionable purity. The successful use of mild *antacids* (chalk mixture) disinfectants, opium and stimulants which all enter into the treatment of the disease as practiced by the majority of practitioners would be entirely consistent with the theory of the causation by tyrotaxicon.

Milk Poisoning at Long Branch.

In the *Medical News* of September 25, 1886, is the following article by Wm. R. Newton, M. D., (sanitary inspector and analyst to the State Board of Health of New Jersey,) and to Shippen Wallace (analyst to the State Board of Health of New Jersey):

Inquiries concerning the cases of illness at Long Branch due to noxious milk have been so very numerous and solicitous, and the interest manifested in the subject has been so great that we feel warranted in publishing the following account of the investigation carried out to ascertain the cause of the trouble. It is seldom that the investigator has the opportunity to trace to its source the milk or other food that has caused sickness; but we have in these cases been very fortunate in being able to follow every step in the management of the milk from the farm to the consumer. In similar cases of poisoning by cheese and ice cream which have been investigated by Vaughan and others, although careful analysis has revealed the probable cause, and the toxic substance has been isolated. Some link in the chain of evidence has been wanting. But the history we are now to relate seems unique because every portion of the evidence is before us and we are able to demonstrate what the injurious material really is, besides offering this proof as to the possible cause of the formation of this substance.

On August 7th, twenty-four persons at one of the hotels at Long Branch were taken ill soon after supper. At another hotel, on the same evening nineteen persons were seized with the same form of sickness. From one to four hours elapsed between the meal and the first symptoms. The symptoms noticed were those of gastro intestinal irritation similar to poisoning by any irritating material. That is nausea, vomiting, cramps and collapse; a few had diarrhœa. Dryness of the throat and a burning in the œsophagus were prominent symptoms. While the causes of the sickness even being sought for, and a week after the first series of cases, thirty persons at another hotel were taken ill with precisely the same symptoms as noticed in the first outbreak. Drs. S. H. Hunt and Williams, of Long Branch, attended all the patients on both occasions. Dr. Hunt kindly furnished the following account of the cases: "'The symptoms were very similar to any case of gastro intestinal irritations. I was impressed with this fact although there was an unusual absence of diarrhœa in many of the cases. A few would have several active movements and no vomiting the poison or cause being thus immediately removed; while in many cases it produced violent emesses which was followed by collapse and failure of the heart's action. Both occurred in a few instances, but the rule was the persistent and obstinate nausea and vomiting with a tendency to exhaustion and collapse as seen in cholera. The convalescence and recovery were prompt, and in a few hours all were in their usual health, and no untoward symptoms followed the attack.", The remedies employed were those usually indicated in such cases, such as *antacids*, stimulants and, in a few instances a small *hyhodumatic* injections of morphia were administered. When the news of the outbreak was published one of us immediately set to work under the authority of the State Board of Health to ascertain the cause of the illness. The course of the investigation was as follows:

The character of the illness indicated of course that some article of food was the cause, and the first part of our task was to single the one substance that seemed at fault. The cooking utensils were also suspected because unclean copper vessels have often caused irritant poisoning. Articles of food, such as lobsters, crabs, blue fish, and spanish mackerel, all of which at times and with some persons very susceptible to gastric irritation have produced toxic symptoms were looked for, but it was found that none of these had been eaten at the time of the outbreak. The cooking vessels were examined, and all were found clean and bright, and no evidence of corrosion was presented. Further inquiry revealed the fact that all who had been taken ill had used milk in greater or less quantities, and that persons who had not partaken of milk escaped entirely; corroborative of this it was ascertained that those who had used milk to the exclusion of other diet were violently ill. This was prominently noticed in the cases of infants fed from the bottle when nothing but uncooked milk was used. In one case an adult drank about a quart of the milk, and was almost immediately siezed with violent vomiting followed by diarrhœa, and this by collapse. Suffice it to say, that we were able to eliminate all other articles of food, and to decide that the milk was the sole cause of the outbreak. Having been able to determine this, the next step was to discover why that article should in these cases cause so serious a form sickness.

The probable causes which we were to investigate were outlined as follows: (1). Some chemical substance such as borax, boracic acid, salicylic acid, sodium, bicarbonate sodium sulphate, added to preserve the milk, or to correct acidity. (2). The use of polluted water as an adulterant. (3). Some poisonous material accidentally present in the milk (4). The use of milk from diseased cattle. (5). Improper feeding of the cattle. (6). Improper care of the milk. (7.) The development in the milk of some ferment or ptomaine, such as tyrotoxicon.

At the time of the first outbreak we were unable unfortunately to obtain any of the noxious milk, as that unconsumed had been destroyed, but the second outbreak a liberal quantity was obtained. It was soon ascertained that one dealer had supplied all the milk used at the three hotels when the sickness occurred.

His name and address having been obtained, the next step in the investigation was to inspect all farms, and the cattle thereon from which the milk was obtained. We also learned that two deliveries at the hotels were made daily, one in the morning and one in the evening; that the milk supplied at night was the sole cause of the sickness, and that the milk from but one of the farms was at fault. The cows on this farm were found to be in good health and besides being at pasture were well fed with bran, middlings and corn meal.

So far we had been able to eliminate as causes diseased cattle and improper feeding, and we were then compelled to consider the other possible sources of the toxic material. While the inspection of the farms was being made the analysis of the milk was in progress. The results of this showed that no chemical substance had been added to the milk; that it was of average composition; that no polluted water had been used as a diluent, and that no poisonous metals were present. This result left us nothing to consider but two probable causes—improper care of the milk, and the presence of a ferment.

As to the former we soon learned much. The cows were milked at the unusual and abnormal hours of midnight and noon, and the noon's milking—that which alone was followed by illness—was placed while hot in the cans and then, without any attempt at cooling, carted eight miles during the warmest part of the day in a very hot month.

This practice seemed to us sufficient to make the milk unpalatable, if not injurious, for it is well known that when fresh milk is closed up in a tight vessel and then deposited in a warm place, a very disagreeable odor and taste are developed. Old dairymen speak of the "animal heat" as an entity, the removal of which is necessary in order that the milk shall keep well and have a pleasant taste. While we do not give this thing a name, we are fully convinced that milk should be thoroughly "cured" by proper chilling and aeration before it is transported any distance, or sold for consumption in towns or cities.

This opinion is based upon a study of the methods prevalent among experienced dairymen, who ship large quantities to our great cities. The usual practice is to allow the milk to stand in open vessels surrounded by ice or cold water, for from eight to twelve hours before transportation, and when placed in the cars it has a temperature of from fifty degrees to sixty degrees, and is delivered to the consumers in a perfectly sweet condition. The city of New York receives about 200,000 gallons each day from the surrounding country, and much of it brought in by the railroads has been on the cars for a time varying from six to twelve hours, yet we seldom hear of any of this milk undergoing the peculiar form of fermentation set up in the Long Branch milk. We may account for this, by assuming that the proper care of the milk after it was taken from the cow, and the low temperature at which it was kept have prevented the formation of any ferment; this opinion seems to be endorsed by all dairymen and managers of large creamaries with whom we have consulted. They all agree in stating that milk maintained at low temperature can be kept sweet and in good condition for many days.

We have dwelt on this branch of our topic somewhat extensively, because we are fully persuaded that the improper care of the milk had much to do with the illness it produced. The results of our inquiry having revealed so much, we next attempted to isolate some substances from the poisonous milk in order that the proof might be more evident. A quantity of the milk which had caused the sickness in the second outbreak, was allowed to coagulate, was then thrown on a coarse filter, and the filtrate collected. This latter was highly acid, and was made slightly alkaline by the addition of potassium hydrate. This alkaline filtrate was now agitated with an equal volume of pure, dry ether, and allowed to stand for several hours, when the ethereal layer was drawn off by means of a pipet. Fresh ether was added to the residum, then agitated, and when separated was drawn off and added to the first ethereal extract. This was now allowed to evaporate spontaneously, and the residue, which seemed to contain a small amount of fat, was treated with distilled water and filtered, the filtrate treated with ether, the ethereal solution drawn off and allowed to evaporate, when we obtained a mass of needle-shaped crystals. This crystaline substance gave a blue color with potassium ferrocyanide, and ferric chloride, and reduced iodie acid. The crystals, when placed on the tongue, gave a burning sensation. A portion of the crystals were mixed with milk and fed to a cat, when in the course of half an hour the animal was seized with retching and vomiting, and was soon in a condition of collapse from which it recovered in a few hours.

From these experiments with this material we were able to identify it as tyrotoxicon, a substance discovered and described by Prof. Victor C. Vaughan, of the University of Michigan. Although much has been published during the past two months concerning this substance it will not be unprofitable in this connection to review the statement of the chemist who first discovered it.

In the year 1883 about 300 persons were taken violently ill after eating cheese, and Professor Vaughan was requested by the Michigan State Board of Health to ascertain the cause. While engaged with this work he discovered the substance which answered to the tests above given, and which he called tyrotoxicon—cheese poison. During June of this year Prof. Vanghan was able to obtain this same substance from ice cream that had sickened eighteen persons. We are now able for the first time to demonstrate this new substance in poisonous milk, thus endorsing the views of Prof. Vaughan, who stated in his report that doubtless it would be discovered in cases in which milk has caused sickness. As to the chemical character of tyrotoxicon we have little to say, for a sufficient amount for an ultimate analysis was not obtained by us.

Vaughan says "The circumstances under which tyrotoxicon develops requires further study. As has been shown it may develop in normal milk kept in a clean bottle for three months; but it is evident that in some instancce it appears much earlier." (In our case it appeared in five hours.) The production of this ptomaine is in all probability due either directly or indirectly to the growth of keeping the milk at a low temperature; or by properly cooling the the milk soon after it is drawn from the cow. It seems also important that the so-called " animal heat " be allowed to escape. Boiling may dissipate the poison from the milk that contains it; this opinion is based on the fact that tyrotoxicon is changed and driven off at a temperature of 180 degrees farenheit.

Conclusions.

We are justified in assuming, after weighing well all the facts ascertained in the investigation, that the sickness at Long Branch was caused by poisonous milk, and that the toxic material was tyrotoxicon. The production of this substance was no doubt due to the improper management of the milk—that is too long a time was allowed to elapse between the milking and the cooling of the milk. The latter not being attended to until the milk was delivered to the hotel; whereas, if the milk had been cooled immediately after it was drawn from the cows, fermentation would not have ensued, and the resulting material—tyrotoxicon would not have been produced.

SOME PRACTICAL NOTES ON SANITARY MEASURES NECESSARY IN TYPHOID FEVER, SCARLETINA AND DIPHTHERIA.

By W. H. Sharp, M. D., *Chairman Wood County Board of Health.*

While the greater problems of sanitary science are those connected with the cities and larger towns, there are others of nearly equal importance, if of less intricacy, including the health of a larger population, living in the smaller villages and country, demanding our earnest attention. The dangers arising from soil water and air pollution by the refuse matters arising from animal life are all around us, and affect to a greater or less degree the prevalence and cause of that class of diseases known as "filth diseases." The existence of such filth does exist in the cleanest and neatest of communities in some out of sight place, some privy vault, cesspool, covered drain, or perhaps some forgotten corner of the cellar. Again, it may be in the water we drink, polluted by the drainage of some neighboring manure pile or pig-pen. In intensifying proportion exists these dangers as in proportion the people are more careless or ignorant. In these brief notes it is desired to impress upon the minds of our people the fact that typhoid fever, scarlet fever, diphtheria and the other contagious and infectious diseases are often, some micro organism." From a close analysis of the facts in the cases recorded in this article, we are of the opinion that the substance is allied chemically to butyric acid; that it formed in the milk by fermentation; and that its formation may be prevented by if not caused by such agencies, greatly favored and fostered by them, and that there are certain points of sanitation that should be observed by every citizen when such diseases appear in a neighborhood that are plain and easily carried out.

Typhoid fever is that one which is probably of most importance, as it occurs most frequently in the country; in the later summer, fall and early winter months. While medical authorities mostly agree in ascribing its origin to a specific germ, which germ is discharged from the body of one sick with the disease in the excretions from the bowels and possibly in the urine, and finds its way principally through the media of drinking water back into the system, there to multiply and cause the disease.

Such being the case, it behooves all those in charge of such cases, to take such steps as will destroy the germ on its escape from the body, or to so dispose of it that it can do no further damage.

What is the usual course in a village or farm house, where an inmate is sick with this fever? The fecal discharges are taken from the house and either deposited in the privy vault or emptied on the ground; from there this germ, probably multiplied many times during the fermentation which takes place in confined masses of fecal matter, is carried into the surrounding soil by the water that comes into contact with it; this surface water gains access to the springs and wells by under ground breaks and crevices, to be taken into the human system to again commence their round of existence. From one case of typhoid fever, sufficient of these poisonous germs can be supplied to contaminate the water supply of a large community, as in the case of the Plymouth, Penn., epidemic. Sanitary works contain the histories of many such examples; but they also contain as many, if not more cases, where a family on a farm has been thus afflicted by the pollution of their well by similar causes.

While it is, perhaps, a disputed question, whether these diseases ever originate *de novo* or spontaneously. The fact is clearly established that there is a felrile disease with many symptoms of typhoid fever, caused by the contamination of water by barn yard, privy vault or sewerage drainage, that has not had the poisonous discharges of typhoid fever present in it.

In Parke's Work on Hygiene, it is stated: "A well drains an extent of ground about in the shape of an inverted cone."

"The area must depend on the soil, in very loose soils a well of sixty to eighty feet may perhaps drain an area of 200 feet in diameter on the surface, but this must be considered as only a rude estimate."

The same fact applies to springs, which are equally liable to become contaminated with surface drainage. Another authority says: "That a well will drain an area with a diameter twice its depth. That the privy vault should be more than twice the depth of the well from it, and never on higher ground. That the well wall should be laid in cement, or thoroughly lined inside with mortar, so as to prevent percolation into the well through the wall and be well covered, as we want to drink water that has come into the well from the bottom, after it has been purified by filtration through the earth.

This is a commentary made on the fact that in Manayunk, Pa., there were at the time of writing two cases of typhoid fever. The victims drank water from a well within twelve feet of which was a privy located on higher ground than the water well.

From Annals of Hygiene, Oct., 1886.

What precautions are necessary, obviously, to destroy the cause, which should be done as follows: The chamber or vessel into which the excretions are received should have a disinfecting solution in it when used by the patient. This solution can either be a solution of chloride of lime, 4 ounces of lime to 1 gallon of soft water, or a solution of 1 ounce each of corrosive sublimate and permanganate of potash to a gallon of water, or solution of chlorinated soda one part and five parts of water, or of chloride of zinc, sulphate of zinc, sulphate of copper or carbolic acid. Of these solutions, the first-named, *i. e.*, chloride of lime, is cheapest and best. Of these solutions use one pint for the disinfection of each discharge from the bowels, and should be well mixed and left in vessel ten minutes before thrown into privy vault. Better still, if the contents are buried at a very considerable distance from all water supply. The bedclothes and patient's clothing should be kept scrupulously clean from the excreta, and when washed first boiled in water containing one part of the chloride of lime solution to nine of water, the clothes being immersed if possible two hours. Under no circumstances should the chamber containiug the discharge be allowed to remain in the rooms occupied by persons, or the clothes thrown into a closet to await a time for washing; if not convenient to boil them at once immerse them in a tub of disinfecting solution.

From Parke's Hygene is taken the following extract relative to the necessary disinfection in typhoid fever: "The bowel discharges are believed to be the sole agents in spreading this disease. The effluria from them escape into the air and adhere to the walls and retain their power for some time, or the discharges themselves get into drinking water. Hence every discharge should at once be mixed with a powerful chemical agent. After complete mixing of the excreta with the disinfectant. In country places the stools should be deeply buried at a distant place far removed from any water supply; they should never be thrown on any manure heaps, or into meddows, nor into earth closets if it can possibly be avoided. As the bedding and beds are so constantly soiled with the discharges they should be baked, or if this cannot be done, boiled immediately after removal with chloride or sulphate of zinc solutions." During the continuance of the disease, if in warm weather, or such suitable for free ventilation, it should be secured by having the doors and windows open as much as possible, and in colder weather the the air of the sick room should be disinfectant by the exposure of chloride of lime around the apartment, or by exposing tincture of iodine to evaporation in saucers. There are other methods of securing this, by use of spray atomizers charged with disinfecting solutions, or by hanging cloths saturated with them about the apartments. All those engaged in nursing should be careful not to remain too long long in the sick room; avoid taxing their strength, by taking proper rest and regular nurishment; avoid in a word everything calculated to depress the vital powers. When a case of typhoid fever appears on a farm or in a village, the water supply should be especially looked after to see if it could have possibly been vitiated in any of the ways before enumerated, and if so its use abandoned, or its condition corrected by looking before drinking. Those engaged in the diery businesss hould be especially careful in the event of cases of typhoid fever occurring on their premises that the water used in washing the vessels containing the milk not be contaminated, and the disease be thus conveyed to their customers. Extensive epidemics of typhoid fever in towns, and cities have been traced to this source, and in works on sanitation can be found the histories of such occurrences.

Scarlet Fever and Diphtheria.

In regard to these two diseases there are certain points in which they may be considered together. Both are eminently contagious, occur sporadically and epidemically, both pre-eminently diseases of adolesence, and are both oftentimes difficult to trace to their origin. In scarlet fever the morbific principle is known to reside in the skin and is given out by its secretions and in its separating epethelcum, during the process of desquamation: also in the breath and discharges from the throat. In diphtheria the poison exists in the exudations and secretions of the throat, and it is chiefly by these, that the disease is communicated. In both diseases this morbific principle infects articles of clothing, the wall, floors, bedstead, articles of furniture, and especially the bedding, carpets, curcurtains and woolen goods of all kinds in use in the rooms of those sick with these diseases. This poison can be conveyed long distances in this manner—especially in the case of scarlet fever; and for a long time retain its activity, especially when excluded from the air. Sir Thomas Watson relates a case where a strip of flannel infected with scarlet fever poison caused the disease after a lapse of a year.

These cases being due to the adherence of the scales of skin thrown off in the process of desquamation. Truesseau relates the following instance to show the persistency of activity in the poison of diphtheria. "A girl aged nine years died of diphtheria. Two sisters were removed from home immediately on the appearance of the disease, and remained well while away from home. After eight months returned home—both then contracted the disease."

In scarlet fever when does this danger of inflicting the well cease? "Not until the contagious particles of epethelial scales which were existing at the time of the fever have been removed, or until the process of disquamation has ceased." This takes from three to four weeks, as on the scalp the process is slower than in other parts of the body.

In regard to diphtheria there is less positive knowledge. In Reynolds' "Practice of Medicine" cases are cited in which children contracted the disease from convalescent patients from three to four weeks after all trace of the disease had cleared away. In my opinion these patients were not fully convalescent; there were probably some traces of the disease still existing in the posterior nose. In what way does an unsanitary condition of the house and its premises affect these diseases?

They affect it by intensifying the poison, rendering the patients more susceptable to its action by depressing their vital forces.

The presence of filth in the water we drink, the air we breath, favors the diffusion of the infectious principle, allows of their accumulation where premises are unclean from decaying vegetable or organic matter, by protecting them from the disinfecting power of oxidation from their exposure to the air. This applies to both city and country; and in this country during late years there have been many examples of this effect. It is not alone in the more crowded parts of the city where these may be found, for this poison may find in the sewers a congenial resting place from whence to invade all homes connected with the system.

In homes where outwardly everything may be cleanly, but where foul privy vault, cesspool drain, or perhaps dark, damp cellar, with its mass of decaying vegetable matter, may, on closer examination, be found affording congenial breeding places for the poison. Such being the case every precaution should be taken on the appearance of cases of these diseases to search out for these spots and wipe them out.

Upon the appearance of a case every precaution should be taken to isolate the patient. The separation of the sick from the well should be as complete as possible; this applies with especial force as regards those under eighteen to twenty years, owing to the susceptibility of these to these diseases. There should, if possible, be no communication between those well and those sick; those nursing, if necessary, to see that those not affected should make a change of clothing, wash face, hands and hair in some disinfecting solution, as carbolic acid solution, solution chlorinated soda, solution corrosive sublimate, one pint to 1,000 of water, or other well-recognized disinfectants.

The rooms occupied by the sick should be stripped bare of carpets, curtains, upholstery and everything not absolutely necessary for the comfort of the patient. Pieces of carpet can be laid on the floor where needed; muslin curtains used, which can be easily washed. Plenty of fresh air and sunlight admitted. There should be exposed vessels, containing fresh chloride of lime or iodine, or solutions of chlorinated soda or carbolic acid, or atomized disinfectant solutions in some of the atomizers offered for that purpose, or the vaporizing of disinfectants by a small lamp, as offered by Parke Davis & Co. All the secretions from the throat should, if possible, be received into vessels containing solution of chloride of lime (four ounces to one gallon of water), or on rags which can be burned or cleansed by prolonged boiling.

In scarlitina the skin should be frequently annointed with some bland oily substance during desquamation, to prevent the fine scales floating through the air, by being made heavier.

"In scarletina after the disease has terminated and all desquamation ceased let the patient take several baths, two or three at intervals of two days, taking care that the head undergoes a thorough brushing, washing and combing, then dressed in fresh clothes, then he can resume his place in the family."

In diptheria let the patient have a thorough warm bath, and be dressed in clean clothes; after it is perfectly evident that there is no lingering disease in the nose. In both of these diseases it behooves us to look out for the milder cases of the disease. A popular idea exists that scarlet rash is not scarlet fever and does not need these precautions. This is a serious error; on the contrary there is as much or greater need for them, because this idea gives a false security, and the mild cases are not shunned; when the fact is that the mild cases can give rise to the most severe. The same applies to mild cases of diphtheria; in the practice of the writer mild cases, apparently not needing the services of a physician, have given rise to several series of cases of severe and malignant diphtheria. If possible these mild cases should be isolated—especially forbidden to come where other children are gathered. After the recovery from this disease, the rooms should be thoroughly cleansed by some plan similar to the following, according to the recommendations of the Committee on Disinfectants of the American Public Health Association, 1885:

All surfaces should be thoroughly washed with a solution of corrosive sublimate of the strength of one part to 1,000 parts of water. The walls or ceiling, if plastered, should be whitewashed with lime wash containing the same proportion of corrosive sublimate, or be washed over with the aqueous solution.

Especial care should be taken to wash away all dust from the window ledges and other places where it may have settled, and to thoroughly cleanse crevices or out-of-the-way places. After this application of the disinfectant, a thorough ventilation for twenty-four hours or more, the floors and wood-work well scrubbed with soap and hot water, and this followed by a second more prolonged exposure to fresh air admitted through open doors and windows. If desired to add fumigation, close the apartment as closely as possible by stopping all apertures, and burn not less than three pounds of sulphur for each thousand cubic feet of air space in the room."

In case of papered walls, this last is especially necessary. Some authorities recommend the tearing off of all the paper and re-papering.

In regard to funerals of those dying of scarlet fever and diphtheria, they should, as far as possible be private—no services held at the house and no young person allowed to attend.

Can persons visit the house where these diseases prevail, for the purpose of rendering aid, where such persons have children! This is a question often asked of the physician I never hesitate to say yes, under certain restrictions, viz., wear, if possible, cotton overclothes while with the sick; on return home change all clothing and take a complete bath with warm water and soap, including washing the hair and cleansing finger nails, before coming into contact with the children.

I have found a very common practice in many households, to be that of throwing slop water from the kitchen on to the ground just outside, or perhaps into an earthern ditch. In several instances where cases of diphtheria occurred, I have been satisfied that the practice had a very deleterious influence on the patients,

No child should be allowed to attend school from a house where there are either of these diseases. In a late discussion of this subject in Germany, this period was placed at six weeks from the occurrence of a case of scarlet fever, and two weeks in a case of diphtheria; and school officers should be notified by physicians and health authorities of the occurrence of these diseases in the families of the neighborhood. By so doing it will seldom be necessary to close the schools on account of the prevalence of these diseases, especially if watch be kept to keep out the mild cases.

NOTE.—This solution of corrosive sublimate (1 to 1,000) can be made thus: Corrosive sublimate, half ounce; common salt, quarter of an ounce; rain water, half a pint: mark "*Poison*." Of this concentrated solution one teaspoonful (one drachm) added to one pint of water, makes the strength of one to one thousand. The chloride of lime should be fresh, or such as has been kept in glass, wood or metal vessels, as that put up in pasteboard boxes, as some manufacturers are in the habit of putting it up in small quantities, absorbs moisture from the air and deteriorates. Sulphate of iron (green vitriol) while an excellent deodorizer, is but a feeble disinfectant.